EXHIBIT 1

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
90/007,829	11/25/2005	5910988		5961

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EXAMINER	
ART UNIT	PAPER NUMBER

DATE MAILED: 11/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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THIRD PARTY REQUESTER'S CORRESPONDENCE ADDRESS

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EX PARTE REEXAMINATION COMMUNICATION TRANSMITTAL FORM

REEXAMINATION CONTROL NO 90/007829

PATENT NO. 5,910,988

ART UNI 3993

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above identified ex parte reexamination proceeding (37 CFR 1.550(f)).

Where this copy is supplied after the reply by requester, 37 CFR 1.535, or the time for filing a repliy has passed, no submission on behalf of the ex parte reexamination requester will be acknowledged or considered (37 CFR 1.550(g)).

Office Action in Ex Parte Reexamination	Control No. 90/007,829	Patent Under Reexamination 5910988	
	Examiner Michael O'Neill	Art Unit 3993	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

a☐ Responsive to the communication(s) filed on _____ .   b☐ This action is made FINAL.

c☒ A statement under 37 CFR 1.530 has not been received from the patent owner.

A shortened statutory period for response to this action is set to expire 2 month(s) from the mailing date of this letter.
Failure to respond within the period for response will result in termination of the proceeding and issuance of an *ex parte* reexamination certificate in accordance with this action. 37 CFR 1.550(d). **EXTENSIONS OF TIME ARE GOVERNED BY 37 CFR 1.550(c).**
If the period for response specified above is less than thirty (30) days, a response within the statutory minimum of thirty (30) days will be considered timely.

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☐ Notice of References Cited by Examiner, PTO-892.
2. ☐ Information Disclosure Statement, PTO/SB/08.
3. ☐ Interview Summary, PTO-474.
4. ☐ _____.

Part II SUMMARY OF ACTION

1a. ☒ Claims *1-50* are subject to reexamination.

1b. ☐ Claims _____ are not subject to reexamination.

2. ☐ Claims _____ have been canceled in the present reexamination proceeding.

3. ☐ Claims _____ are patentable and/or confirmed.

4. ☒ Claims *1-50* are rejected.

5. ☐ Claims _____ are objected to.

6. ☐ The drawings, filed on _____ are acceptable.

7. ☐ The proposed drawing correction, filed on _____ has been (7a)☐ approved (7b)☐ disapproved.

8. ☐ Acknowledgment is made of the priority claim under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All b)☐ Some* c)☐ None of the certified copies have

   1☐ been received.

   2☐ not been received.

   3☐ been filed in Application No. _____ .

   4☐ been filed in reexamination Control No. _____.

   5☐ been received by the International Bureau in PCT application No. _____.

   * See the attached detailed Office action for a list of the certified copies not received.

9. ☐ Since the proceeding appears to be in condition for issuance of an *ex parte* reexamination certificate except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte* Quayle, 1935 C.D. 11, 453 O.G. 213.

10. ☐ Other: _____

cc: Requester (if third party requester)

Reexamination Procedures

In order to ensure full consideration of any amendments, affidavits or declarations, or other documents as evidence of patentability, such documents must be submitted in response to this Office action. Submissions after the next Office action, which is intended to be a final action, will be governed by the requirements of 37 CFR 1.116, after final rejection and 37 CFR 41.33 after appeal, which will be strictly enforced.

Extensions of time under 37 CFR 1.136(a) will not be permitted in these proceedings because the provisions of 37 CFR 1.136 apply only to "an applicant" and not to parties in a reexamination proceeding. Additionally, 35 U.S.C. 305 requires that reexamination proceedings "will be conducted with special dispatch" (37 CFR 1.550(a)). Extension of time in *ex parte* reexamination proceedings are provided for in 37 CFR 1.550(c).

The patent owner is reminded of the continuing responsibility under 37 CFR 1.565(a) to apprise the Office of any litigation activity, or other prior or concurrent proceeding, involving Patent No. 5,910,988 throughout the course of this reexamination proceeding. The third party requester is also reminded of the ability to similarly apprise the Office of any such activity or proceeding throughout the course of this reexamination proceeding. See MPEP §§ 2207, 2282 and 2286.

Patent owner is notified that any proposed amendment to the specification and/or claims in this reexamination proceeding must comply with 37 CFR 1.530(d)-(j), must be formally presented pursuant to 37 CFR 1.52(a) and (b), and must contain any fees required by 37 CFR 1.20(c).

After the filing of a request for reexamination by a third party requester, any document filed by either the patent owner or the third party requester must be served on the other party (or parties where two or more third party requester proceedings are merged) in the reexamination proceeding in the manner provided in 37 CFR 1.248. See 37 CFR 1.550(f).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 16, 18, 26, 29, 36, 42 and 46 through 50 rejected under 35 U.S.C. 102(b) as being anticipate by Campbell, et al. (USPN 5,373,550).

The below claim charts identify the claim limitation vis-à-vis Campbell, et al.'s disclosure of said limitation.

Claim 1	Campbell et al.
A system for central management, storage and report generation of remotely captured paper transactions from documents and receipts comprising:	"Checks used to effectuate commercial and private transactions may be cleared through the banking system by transporting images of those checks between sending institutions and receiving institutions in forward and reverse flow paths between banks of first deposit and payor banks. The check images are transported through a public switched telephone network which contains a special check imaging node which provides a network based check clearing service for customers of telephone network. The check imaging node receives images of checks from institutions which subscribe to this service and routes those images through the telephone network to intended subscriber and non-subscriber recipients....." (Campbell, et al., Abstract.)

one or more remote data access subsystems for	Remote data access subsystem = sending institution 14. "The sending institution 14 is a subscriber to the telecommunications services provided by the node 12." ... "For example, the sending institution 14 may be a payor bank and the receiving institution may be a bank of first deposit which are involved in a processes of returning a check dishonored by institution 14 to the institution 16. Alternatively, the sending institution 14 may be a bank of first deposit which is in the process of forwarding checks to an institution 16 which is acting as a payor bank." (Campbell, et al., Col. 2, ll. 32-45.)
capturing and	"The sending institution 14 possesses check imaging equipment 18 which produces electrical or optical signals representing the image of a check." (Campbell, et al., Col. 2, ll. 64-66.)
sending	"The images produced by the equipment 18 are directed to a network interface 20 which converts the signals from the equipment 18 into signals suitable for transmission on the telephone network 10." (Campbell, et al., Col. 3, ll. 17-20.)
paper transaction data and	"The controller 42 may read some data accompanying check images, for example, it may identify that TCP/IP protocol information accompanying those images. That information may instruct the node 12 about the identity of the sending institution and the intended receiving institution." (Campbell, et al., Col. 5, ll. 23-28.)
subsystem identification information comprising	"The assembler/disassembler 40 [at the processing node 12] may read certain overhead information accompanying the images, including frame relay flags, identifiers, address bits, indicators, and other overhead information." (Campbell, et al., Col. 5, ll. 2-5.)
at least one imaging subsystem for capturing the documents and receipts and	"The sending institution 14 possesses check imaging equipment 18 which produces electrical or optical signals representing the image of a check .... The imaging equipment may be large multiworkstation systems available from companies such as IBM, UNISYS, or NCR. (Campbell, et al., Col. 2, l. 64 to Col. 3, l. 12.)
at least one data access controller for managing the capturing and sending of the transaction data;	"The images produced by the equipment 18 are directed to a network interface 20 which converts the signals from the equipment 18 into signals suitable for transmission on the telephone network 10." (Campbell et al., Col. 3, ll. 17-20.)
at least one central data processing subsystem for	"The network 10 contains at least one check image processing node 12 which provides check clearance services. The node 12 receives images of checks from a sending institution 14 transmitted through the network 10. The node 12 processes the

	check images and sends them to a receiving institution 16." (Campbell, et al., Col. 2, ll. 26-32.)
processing,	"[T]he processing node 12 receives check images and performs certain processing procedures on those images, including at least temporary storage of the received check images." (Campbell, et al., Col. 3, ll. 55-58.)
sending,	"The node 12 contains a frame relay assembler/disassembler 40 which receives frames of digital information representing check images sent by service subscribers to the network 38. The assembler/disassembler 40 also transmits frames of digital information representing check images to the network 38 after those images have been processed by the node 12. A node controller and router 42 controls the routing of check images to their intended destinations, both in the controller and to their ultimate destinations outside the network 38." (Campbell, et al., Col. 4, ll. 30-39.)
verifying and	Verify: "The controller 42 may receive instructions from the work center 54 through the interface 52 to control changes made to the information in the database 46. These changes may include the addition or changes to personal identification numbers or bank related data." (Campbell, et al., Col. 5, ll. 31-39.)
storing	Storing: Data that is received, transmitted, changed, read, identified is axiomatically stored in the system.
the paper transaction data and the subsystem identification information comprising	"The controller 42 may read some data accompanying check images, for example, it may identify that TCP/IP protocol information accompanying those images. That information may instruct the node 12 about the identity of the sending institution and the intended receiving institution." (Campbell, et al., Col. 5, ll. 23-28.)
a management subsystem for managing the processing, sending and storing of the of the transaction data; and	"A node controller and router 42 controls the routing of check images to their intended destinations, both in the controller and to their ultimate destinations outside the network 38." (Campbell, et al., Col. 4, ll. 36-39.) "The node controller and router 42 provides interfaces to systems external to the node 12. It is connected to all the other subsystems in the node 12 by way of the local area network 56 ... The controller 42 may also be configured to handle information encrypted by sending institutions to provide security for the images transported by the network 38. The controller 42 may have its own encryption and decryption equipment to provide a secure environment in the node 12." (Campbell, et al., Col 5, ll. 14-60.)

at least one communication network for the transmission of the transaction data	"The image of a check is created in a sending institution and sent to a receiving institution by means of the public switched telephone network." (Campbell, et al., Col. 2, ll. 20-22.) "The public switched telephone network 10 may be a telephone network provided by a local exchange carrier ...The network may be digital or analog. Two examples of suitable digital networks are a packet network and a frame relay network, such as the existing packet and frame relay networks now provided by carriers such as AT&T." (Campbell, et al., Col. 2, ll. 50-63.)
within and	"A local area network 56 connects the subsystems of the node 12 described above." (Campbell, et al., Col. 4, ll. 56-58.) "The images produced by the equipment 18 are directed to a network interface 10 which converts the signals from the equipment 18 into signals suitable for transmission on the telephone network 10." (Campbell, et al., Col. 3, ll. 17-20.)
between said one or more data access subsystems and said at least one data processing subsystem,	"The network access lines 22 may comprise any form of transmission line suitable for carrying the expected volume of check image traffic between the sending institution 14 and the telephone network 10. For example, the network access lines 22 may comprise one or more digital transmission lines operating at speeds of about 2400 bits per second to about 1.544 megabits per second or more. Connection to the network 10 may be by an ordinary dial up line or by a dedicated private line." (Campbell, et al., Col. 3, ll. 20-31.)
with the data access subsystem providing encrypted subsystem identification information and encrypted paper transaction data to the data processing subsystem.	"The controller 42 may also be configured to handle information encrypted by sending institutions to provide security for the images transported by the network 38. The controller 42 may have its own encryption and decryption equipment to provide a secure environment in the node 12." (Campbell, et al., Col. 5, ll. 55-60.) This implies that the sending bank 14 is capable of sending encrypted information. This information includes check images and also information "about the identity of the sending institution." (Campbell, et al., Col. 5, ll. 26-27.)

Claims 2, 16, 18 depend from claim 1. How Campbell, et al. discloses the limitations found within these claims has been fully explained in the Exhibit entitled "Element by element comparison of claims 1-41 of the '988 Patent to Campbell, et al. (U.S. Patent No. 5,373,550)" that the requester presented in its request of reexamination. This Exhibit is incorporated herein as the analysis demonstrating the correlation between claim limitations and the Campbell, et al. disclosure. For the convenience of the Patent Owner, this requester Exhibit is attached to the end of this Office action as an Appendix.

Claim 26	Campbell, et al.
A method for central management, storage and verification of remotely captured paper transactions from documents and receipts comprising the steps of:	"Checks used to effectuate commercial and private transactions may be cleared through the banking system by transporting images of those checks between sending institutions and receiving institutions in forward and reverse flow paths between banks of first deposit and payor banks. The check images are transported through a public switched telephone network which contains a special check imaging node which provides a network based check clearing service for customers of telephone network. The check imaging node receives images of checks from institutions which subscribe to this service and routes those images through the telephone network to intended subscriber and non-subscriber recipients...." (Campbell, et al., Abstract.)
capturing an image of the paper transaction data	"The sending institution 14 possesses check imaging equipment 18 which produces electrical or optical signals representing the image of a check ..... The imaging equipment may be large multiworkstation systems available from companies such as IBM, UNISYS, or NCR. (Campbell, et al., Col. 2, l. 64 to Col. 3, l. 12.)
at one or more remote locations and	Remote location = sending institution 14.
sending a captured image of the paper transaction data;	"The images produced by the equipment 18 are directed to a network interface 20 which converts the signals from the equipment 18 into signals suitable for transmission on the telephone network 10." (Campbell, et al., Col. 3, ll. 17-20.) "The output of the network interface 20 is connected to one or more network access lines 22 in FIG. 1." (Campbell, et al., Col. 3, ll. 20-22.)
managing the capturing and sending of the transaction data;	"The images produced by the equipment 18 are directed to a network interface 20 which converts the signals from the equipment 18 into signals suitable for transmission on the telephone network 10." (Campbell, et al., Col. 3, ll. 17-20.) "The imaging equipment may be large multiworkstation systems available from companies such as IBM, UNISYS, or NCR." (Campbell, et al., Col. 3, ll. 10-12.).
collecting, processing, sending and	"The network 10 contains at least one check image processing node 12 which provides check clearance services. The node 12 receives images of checks from a sending institution 14 transmitted through the network 10. The node 12 processes the check images and sends them to a receiving institution 16." (Campbell, et al., Col. 2, ll. 26-32.)

storing the transaction data	"[T]he processing node 12 receives check images and performs certain processing procedures on those images, including at least temporary storage of the received check images." (Campbell, et al., Col. 3, ll. 55-58.)
at a central location;	"The node 12 contains a frame relay assembler/disassembler 40 which receives frames of digital information representing check images sent by service subscribers to the network 38. The assembler/disassembler 40 also transmits frames of digital information representing check images to the network 38 after those images have been processed by the node 12. A node controller and router 42 controls the routing of check images to their intended destinations, both in the controller and to their ultimate destinations outside the network 38." (Campbell, et al., Col. 4, ll. 30-39.) "The controller 42 may receive instructions from the work center 54 through the interface 52 to control changes made to the information in the database 46. These changes may include the addition or changes to personal identification numbers or bank related data." ... "The controller 42 may read some data accompanying check images, for example, it may identify that TCP/IP protocol information accompanying those images. That information may instruct the node 12 about the identity of the sending institution and the intended receiving institution." (Campbell, et al., Col. 5, ll. 23-28.)
managing the collecting, processing, sending and storing of the transaction data;	"A node controller and router 42 controls the routing of check images to their intended destinations, both in the controller and to their ultimate destinations outside the network 38." (Campbell, et al., Col. 4, ll. 36-39.) "The node controller and router 42 provides interfaces to systems external to the node 12. It is connected to all the other subsystems in the node 12 by way of the local area network 56. The controller 42 provides access to the database 46 and directs check images to appropriate subsystems in the node 12 connected to the local area network 56. The controller 42 also routes the check images from the node 12 to their ultimate destinations by way of the assembler/disassembler 40 and the frame relay network 38. The controller 42 may read some data accompanying check images, for example, it may identify that TCP/IP protocol information accompanying those images. That information may instruct the node 12 about the identity of the sending institution and the intended receiving institution .... The controller 42 may also be configured to handle information encrypted by sending institutions to provide security for the images transported by the network 38. The controller 42 may have its own encryption and decryption equipment to provide a secure environment in the node 12." (Campbell, et al., Col 5, ll. 14-60.)

encrypting subsystem identification information and the transaction data; and	"The controller 42 may also be configured to handle information encrypted by sending institutions to provide security for the images transported by the network 38. The controller 42 may have its own encryption and decryption equipment to provide a secure environment in the node 12." (Campbell, et al., Col. 5, ll. 55-60.) This implies that the sending bank 14 sends encrypted information. This information includes check images and also information "about the identity of the sending institution." (Campbell, et al., Col. 5, ll. 26-27.) Thus, both the check images and the identifying information may be encrypted.
transmitting the transaction data and the subsystem identification information within and between the remote location(s) and the central location.	"The image of a check is created in a sending institution and sent to a receiving institution by means of the public switched telephone network." (Campbell, et al., Col. 2, ll. 20-22.) "The controller 42 may read some data accompanying check images, for example, it may identify that TCP/IP protocol information accompanying those images. That information may instruct the node 12 about the identity of the sending institution and the intended receiving institution." (Campbell, et al., Col. 5, ll. 23-28.) **Within the node 12**: "A local area network 56 connects the subsystems of the node 12 described above." (Campbell, et al. Col. 4, ll. 56-58.) **Within the sending bank 14**: "The images produced by the equipment 18 are directed to a network interface 10 which converts the signals from the equipment 18 into signals suitable for transmission on the telephone network 10." (Campbell, et al., Col. 3, ll. 17-20.) **Between:** "The public switched telephone network 10 may be a telephone network provided by a local exchange carrier ... (Campbell, et al., Col. 2, ll. 50-63.) "The network access lines 22 may comprise any form of transmission line suitable for carrying the expected volume of check image traffic between the sending institution 14 and the telephone network 10." (Campbell, et al., Col. 3, ll. 23-26.)

Claims 29 depends from claim 26. How Campbell, et al. discloses the limitations found within this claim has been fully explained in the Exhibit entitled "Element by element comparison of claims 1-41 of the '988 Patent to Campbell, et al. (U.S. Patent No. 5,373,550)" that the requester presented in its request of reexamination. This Exhibit is incorporated herein as the analysis demonstrating the correlation between claim limitations and the Campbell, et al. disclosure. For the convenience of the Patent Owner, this requester Exhibit is attached to the end of this Office action as an Appendix.

Claim 42	Campbell, et al.
A communication network for the transmission of data within and between one or more remote data processing subsystems, at least one intermediate data collecting subsystem and at least one central subsystem forming a tiered architecture wherein each of said at least one central data processing subsystem communicate with a corresponding some of said at least one data collecting subsystem and each of said at least one data collecting subsystem communicate with a corresponding some of said one or more data processing subsystems,	"The system of FIG. 1 comprises a public switched telephone network 10. The network 10 contains at least one check image processing node 12 which provides check clearance services. The node 12 receives images of checks from a sending institution 14 transmitted through the network 10. The node 12 processes the check images and sends them to a receiving institution 16." (Campbell, et al., Col. 2, ll. 25-33.)
said data processing subsystem including an imaging subsystem for capturing images of documents and receipts, comprising:	"The sending institution 14 possesses check imaging equipment 18 which produces electrical or optical signals representing the image of a check. The image may comprise a sequence of signals each representing some characteristic of a picture element, for example, each signal may represent the intensity or color of light reflected from a small region on the front or back surface of a check. The check imaging equipment may be any device which can create suitable graphic image signals. For example, the imaging equipment may comprise systems which scan the front face, the back face or both the front and back faces of a check, as required, to create a series of intensity or color signals for each picture element making up the scanned surfaces of the check. The imaging equipment may be large multiworkstation systems available from companies such as IBM, UNISYS, or NCR." (Campbell, et al., Col. 2, l. 64 to Col. 3, l. 12.)
at least one first local area network for transmitting data within a corresponding one of said one or more remote subsystems;	"The imaging equipment may be large multiworkstation systems available from companies such as IBM, UNISYS, or NCR." (Campbell, et al., Col. 3, ll. 10-12.) "The images produced by the equipment 18 are directed to a network interface 20 which converts the signals from the equipment 18 into signals suitable for transmission on the telephone network 10." (Campbell, et al., Col. 3, ll. 17-20.) "The output of the network interface 20 is connected to one or more network access lines 22 in FIG. 1. The network access lines 22 may comprise any form of transmission

	line suitable for carrying the expected volume of check image traffic between the sending institution 14 and the telephone network 10. For example, the network access lines 22 may comprise one or more digital transmission lines operating at speeds of about 2400 bits per second to about 1.544 megabits per second or more. Connection to the network 10 may be by an ordinary dial up line or by a dedicated private line." (Campbell, et al., Col. 3, ll. 20-31.)
at least one second local area network for transmitting data within a corresponding one of said at least one intermediate subsystem;	"A local area network 56 connects the subsystems of the node 12 described above." (Campbell, et al., Col. 4, ll. 56-58.) "The node controller and router 42 provides interfaces to systems external to the node 12. It is connected to all the other subsystems in the node 12 by way of the local area network 56. The controller 42 provides access to the database 46 and directs check images to appropriate subsystems in the node 12 connected to the local area network 56. The controller 42 also routes the check images from the node 12 to their ultimate destinations by way of the assembler/disassembler 40 and the frame relay network 38. The controller 42 may read some data accompanying check images, for example, it may identify that TCP/IP protocol information accompanying those images." (Campbell, et al., Col. 5, ll. 14-26.)
at least one third local area network for transmitting data within a corresponding one of said at least one central subsystem; and	"Check images are received in a network interface 30 in the receiving institution 16. The interface 30 transforms the signals from the network 10 into a form suitable for use by check image processing equipment 32 located in the receiving institution 16. The check image processing equipment 32 may be similar to the imaging equipment 18 located in the sending institution 14. The equipment 32 may also be facsimile equipment, character recognition equipment, e-mail systems, or any other image processing equipment by which the images received may be displayed or used by the receiving institution." (Campbell, et al., Col. 3, ll. 41-52.)
at least one wide area network for transmitting data between said one or more remote subsystems, said at least one intermediate subsystem and said at least one central subsystem.	"The image of a check is created in a sending institution and sent to a receiving institution by means of the public switched telephone network." (Campbell, et al., Col. 2, ll. 20-22.) "The public switched telephone network 10 may be a telephone network provided by a local exchange carrier such as one of the Regional Bell Operating Companies or it may be a telephone network provided by a long distance carrier such as AT&T. Another example of a public switched telephone network 10 is the combined network provided by a local exchange carrier and a long distance carrier. The network may be either electrically or optically based or may involve combinations of those two technologies. The network may be digital or analog. Two examples of suitable digital networks are a packet network and a

	frame relay network, such as the existing packet and frame relay networks now provided by carriers such as AT&T." (Campbell, et al., Col. 2, ll. 50-63.)

Claim 46	Campbell, et al.
A method for transmitting data within and between one or more remote subsystems, at least one intermediate subsystem and at least one central subsystem in a tiered manner wherein each of the central subsystems communicate with at least one intermediate subsystem and each of the intermediate subsystems communicate with at least one remote subsystems comprising the steps of:	"The system of FIG. 1 comprises a public switched telephone network 10. The network 10 contains at least one check image processing node 12 which provides check clearance services. The node 12 receives images of checks from a sending institution 14 transmitted through the network 10. The node 12 processes the check images and sends them to a receiving institution 16." (Campbell, et al., Col. 2, ll. 25-33.)
capturing an image of documents and receipts and extracting data therefrom;	"The sending institution 14 possesses check imaging equipment 18 which produces electrical or optical signals representing the image of a check." (Campbell, et al., Col. 2, ll. 64-66.) "The imaging equipment may be large multiworkstation systems available from companies such as IBM, UNISYS, or NCR." (Campbell, et al., Col. 3, ll. 10-12.) "The images produced by the equipment 18 are directed to a network interface 20 which converts the signals from the equipment 18 into signals suitable for transmission on the telephone network 10." (Campbell, et al., Col. 3, ll. 17-20.) Extracting: "The destination identifying data may be manually entered by an operator at the time the image is generated in institution 14. The data may also be entered by character recognition equipment or the like in response to the image produced by the equipment 18. One alternative to the sending institution producing data relating to the destination of the check image is to install character recognition equipment in the check image processing node 12. The character recognition in the node 12 then can read the check image and determine its destination from certain characteristics of the such as the endorsements on the check." (Campbell, et al., Col. 3, l. 65 to Col. 4, l. 9.)
transmitting data within the remote locations;	"The imaging equipment may be large multiworkstation systems available from companies such as IBM, UNISYS, or NCR." (Campbell, et al., Col. 3, ll. 10-12.) "The images produced by the equipment 18 are directed to a network interface 20 which converts the signals from the equipment 18 into signals suitable for transmission on the telephone network 10." (Campbell, et al., Col. 3, ll. 17-20.)

transmitting data from each remote location to corresponding intermediate location;	"The network 10 contains at least one check image processing node 12 which provides check clearance services. The node 12 receives images of checks from a sending institution 14 transmitted the network 10." (Campbell, et al., Col. 2, ll. 26-32.)
transmitting data within the intermediate locations;	"A local area network 56 connects the subsystems of the node 12 described above." (Campbell, et al., Col. 4, ll. 56-58.) "The node controller and router 42 provides interfaces to systems external to the node 12. It is connected to all the other subsystems in the node 12 by way of the local area network 56. The controller 42 provides access to the database 46 and directs check images to appropriate subsystems in the node 12 connected to the local area network 56." (Campbell, et al., Col. 5, ll. 14-26.)
transmitting data from each intermediate location to corresponding central locations; and	"The network 10 contains at least one check image processing node 12 which provides check clearance services. The node 12 receives images of checks from a sending institution 14 transmitted through the network 10. The node 12 processes the check images and sends them to a receiving institution 16." (Campbell, et al., Col. 2, ll. 26-32.)
transmitting data within the central locations.	"Check images are received in a network interface 30 in the receiving institution 16. The interface 30 transforms the signals from the network 10 into a form suitable for use by check image processing equipment 32 located in the receiving institution 16. The check image processing equipment 32 may be similar to the imaging equipment 18 located in the sending institution 14. The equipment 32 may also be facsimile equipment, character recognition equipment, e-mail systems, or any other image processing equipment by which the images received may be displayed or used by the receiving institution." (Campbell, et al., Col. 3, ll. 41-52.)

Claims 47 through 50 depend from claim 46. How Campbell, et al. discloses the limitations found within these claims has been fully explained in the Exhibit entitled "Element by element comparison of claims 46-50 of the '988 Patent to Campbell, et al. (U.S. Patent No. 5,373,550)" that the requester presented in its request of reexamination. This Exhibit is incorporated herein as the analysis demonstrating the correlation between claim limitations and the Campbell, et al. disclosure. For the convenience of the Patent Owner, this requester Exhibit is attached to the end of this Office action as an Appendix.

Claims 42 through 45 are rejected under 35 U.S.C. 102(b) as being anticipated by Minoli, "Imaging in Corporate Environments: Technology and Communication" (Minoli).

The below claim charts identify the claim limitation vis-à-vis Minoli's disclosure of said limitation.

Claim 42	Minoli
A communication network for the transmission of data within and between one or more remote data processing subsystems, at least one intermediate data collecting subsystem and at least one central subsystem forming a tiered architecture	Minoli is entitled "Imaging in Corporate Environments: Technology and Communication." As Minoli states in the preface to his book, "The word Communication in the subtitled emphasizes aspects of remote deliver of stored image information, whether across a local area network (LAN) in a building or campus, or a wide area network (WAN) covering a region, a state, or the nation." Minoli, p. xi. "WAN communication services [] can be employed in support of distributed imaging in general and LAN interconnection in particular." Minoli, p. 39. FIGs. 2.5, 2.6, 2.8, 2.10 and 9.8 show multi-tiered imaging architecture.
wherein each of said at least one central data processing subsystem communicate with a corresponding some of said at least one data collecting subsystem and each of said at least one data collecting subsystem communicate with a corresponding some of said one or more data processing subsystems,	Minoli teaches that a typical remote image capture application in the banking industry "involves (1) scanning of documents at branch offices for transmission to a host computer at the main office ' of the central site." Minoli, p. 20. The Scan segment provides an imaging subsystem (scanner) that captures images of documents. These images may be routed in electronic form through the 'Utilities segment' to make use of the fax server or mainframe, to the "Access segment for viewing and storage. As is clear from Figure 2.6, in order for images to be transmitted to the 'Access Segment,' they must be routed through the 'Utilities segment.' Minoli, p. 31. The top-left-hand comer of FIG. 2.6 demonstrates several scanners connected by a LAN as a 'Scan segment' in a 3-tier architecture. Minoli, p. 31. Each of the 3 LANs has a LAN wiring hub, which is a common connection point for devices in a network. The LANs are illustrated as connected by a LAN bridge, which is a device that connects two or more LANs. However, Minoli contemplates that these 3 LANs could also be connected by a WAN, "WAN communication services [] can be employed in support of distributed imaging in general and LAN interconnection in particular." Minoli, p. 39. In FIG. 9.8, a 'remote site' having a 'LAN wiring hub' which is connected to a central site through a WAN. See Minoli, p. 270.

said data processing subsystem including an imaging subsystem for capturing images of documents and receipts, comprising:	'Scanning station' "converts documents into compressed data files and transmits them (typically over a LAN) to a shared-image database." Minoli, p. 9.
at least one first local area network for transmitting data within a corresponding one of said one or more remote subsystems;	Minoli teaches that a typical remote image capture application in the banking industry "involves (1) scanning of documents at branch offices for transmission to a host computer at the main office of the central site." Minoli, p. 20. The top-left-hand corner of FIG. 2.6 is the 'Scan segment' and demonstrates several scanners connected by a LAN having a 'LAN wiring hub.' See Minoli, p. 31.
at least one second local area network for transmitting data within a corresponding one of said at least one intermediate subsystem;	The bottom-left-hand corner of FIG. 2.6 demonstrates a 'fax server' and a mainframe connected via a 'LAN wiring hub' in a portion of the 3-tiered-architecture shown as the 'Utilities segment.' Minoli, p. 31.
at least one third local area network for transmitting data within a corresponding one of said at least one central subsystem; and	FIG. 2.6 shows an 'Access segment' in the bottom corner of the 3-tiered architecture including a file server, a printer, and viewing workstations connected through a 'LAN wiring hub.' This LAN is connected to the 'Utilities segment' LAN via a 'LAN bridge.' Minoli, p. 31.
at least one wide area network for transmitting data between said one or more remote subsystems, said at least one intermediate subsystem and said at least one central subsystem.	"WAN communication services [] can be employed in support of distributed imaging in general and LAN interconnection in particular." Minoli, p. 39. "Figure 9.8 depicts WAN connectivity using public frame relay service for LANs supporting imaging applications." Minoli, p. 270. The caption of that figure teaches that this network architecture can be used "to support enterprisewide dissemination of image," such as "scanning of documents at branch offices for transmission to a host computer at the main office of the central site." A WAN is also illustrated in FIGs. 2.8 and 2.10 allowing remote users access to images. Routers and bridges are illustrated providing communications over a WAN.

Claims 43 through 45 depend from claim 42. How Minoli discloses the limitations found within these claims has been fully explained in the Exhibit entitled "Element by element comparison of claims 46-50 of the '988 Patent to Minoli, Imaging in Corporate Environments" (which includes a copy of Figure 2.6 referenced herein) that the requester presented in its request of reexamination. This Exhibit is incorporated herein as the analysis demonstrating the correlation between claim limitations and the Minoli disclosure. For the convenience of the Patent Owner, this requester Exhibit is attached to the end of this Office action as an Appendix.

Claims 46, 47, 48 and 50 are rejected under 35 U.S.C. 102(b) as being anticipated by Geer (USPN 5,930, 788).

The below claim charts identify the claim limitation vis-à-vis Geer's disclosure of said limitation.

Claim 46	Geer
A method for transmitting data within and between one or more remote subsystems, at least one intermediate subsystem and at least one central subsystem in a tiered manner wherein each of the central subsystems communicate with at least one intermediate subsystem and each of the intermediate subsystems communicate with at least one remote subsystems comprising the steps of:	"The present invention comprises an integrated system beginning at a payee's item capture facility for effecting the efficient submission of checks and other financial instruments into the payment system for collection of funds. The financial instruments are received by a payee at a capture location remote from the payee's collecting and clearing depository bank and are presented for payment through the check payment system to the multiple institutions on which the instruments are drawn. In one embodiment, electronic scanning means at a first location established by the payee receives the financial instruments, scans and extracts necessary data therefrom including the data of the magnetic ink character recognition (MICR) line of the instrument, adds necessary data such as the amount and a document identification number to the electronic information associated with each check, and sends this electronic information to the payee's depository bank for further electronic sorting and processing both with regard to the introduction of the checks into the payment system and the crediting of funds represented by the checks to the payee's account at the bank, as the payee processes the check in its own record of account with the check payor. In this first embodiment, the paper financial instruments are typically imaged (electronically, digitally, optically, on microfilm or disk, or otherwise) for archival storage at the payee's location remote from the payee's depository bank, substantially contemporaneous with the capture of the financial or other information on the instrument. The paper instrument itself may then be disposed of, eliminating the need for any additional mechanical sorting, indorsing or imprinting by either the payee or the payee's depository bank." (Geer, Col. 4, l. 46 to Col. 5, l. 9.)

	Wherein: payee 2 is the **remote subsystem**; depository bank 10 is the **intermediate subsystem**; and payment system 12 is the **central subsystem.**
capturing an image of documents and receipts and	"The financial instruments are received by a payee at a capture location **remote** from the payee's collecting and clearing depository bank." (Geer, Col 4, ll. 49-51.) "[F]or retail establishments such as grocery chains and the like that receive large numbers of point of sale checks, the present invention is applicable with the item capture location of the payee being the point of sale check receiving establishment. Point of sale capture may, but need not necessarily, include imaging of the check." (Geer, Col. 8, ll. 48-54.)
extracting data therefrom;	"An image of the physical check is **created**." ... "The image may be an optical or electronic gray-scale or color image of the check maintained in archival storage in pixel-by-pixel digital, optical, magnetic, electronic, fully optical or other storage technology from which information can be derived." (Geer, Col. 8, ll. 12-19.) "The electronic scanning for **extraction of the data** from the MICR line, etc., may be combined with the imaging of the check." (Geer, Col. 8, ll. 61-64.)
transmitting data within the remote locations;	The internal communication network at the remote capture location is inherently disclosed within Geer. Referring to Geer's figures 1 and 2, it is clear that electronic data is transmitted within the remote location among the functional components including the electronic sorter, the imaging unit, the archive, etc. "Following receipt and item capture by the payee, the check will advance to scanning and processing in the electronic scanning block 6 of FIG. 1. In this step, the check is scanned by a suitable reader." (Geer, Col. 7, ll. 38-41.) Thus, check images are created. "The data thus collected will typically include the MICR (Magnetic Ink Character Recognition) data from the MICR lines of the checks. The amount of the check and a date will also be collected (optionally verified by a human operator) and included with the electronic record to be associated with each check." (Geer, Col. 7, ll. 44-50.) Ultimately, the check images and the information extracted from the check must be organized and transmitted to the bank of first deposit. Therefore, the electronic data is inherently transmitted within the remote location. "The embodiment of FIG. 1 uses electronic transmission of information related to electronically sorted information about

	checks received and electronic cash letters related to the particular groups of sorted checks. Therefore, sorting, reconciliation, etc., is effected by electronic means without the need for mechanical processing or delivery of physical paper checks." (Geer, Col. 7, ll. 31-37.) "The information flow within the check payee's organization from item capture 4 to the check payee accounting function 5 is a matter of payee preference." (Geer, Col. 8, ll. 6-9.)
transmitting data from each remote location to corresponding intermediate location;	"A communication link is established between the payee's location and the depository bank. Information pertaining to the checks and/or the cash letters in anticipation of a deposit in the payee's account corresponding to a cash letter (or cash letters) is transmitted from the payee to the collecting and clearing depository bank." (Geer, Col. 5, ll. 25-31.) "[T]his image of the check may, also be transmitted electronically to the bank along with the other information extracted from the check." (Geer, Col. 9, ll. 1-10.)
transmitting data within the intermediate locations;	While the specification does not explicitly disclose the communication network internally at the bank of first deposit, it does disclose the flow of the electronic check information and check images through several functional blocks of the bank of first deposit.[1] Therefore, the electronic data is inherently transmitted within the bank of first deposit.
transmitting data from each intermediate location to corresponding central locations; and	"The electronic check information ... is sent via an appropriate communication link 15 into the payment system 12." (Geer, Col. 9, ll. 27-30.)
transmitting data within the central locations.	"The payment system 12 includes clearing institutions such as the Federal Reserve Banks, Correspondent banks, The National Clearinghouse Association (described in United States Letters Pat. No. 5,265,007), the electronic check clearing house organization (described in Stephens et al., supra), and like mechanisms. Having a direct relationship to the check payment system, the collecting and clearing depository bank 10 is considered a part of the check payment system." (Geer, Col. 9, ll. 30-37.) "The payment system 12 receives checks from depository

[1] "The electronic check information ... is sent via an appropriate communication link 15 into the payment system 12." (Geer, Col 9, ll. 27-30.) "The image 7 is transferred via a communication link 11 from payee 2 to depository bank 10 for financial information processing and archival storage." (Geer, Col. 10, ll. 1-3.) "At the depository bank, the appropriate adjustments of the payee's account balances by the depository bank are carried out 13." (Geer, Col. 9, ll. 11-25) "The payee's account is credited with the appropriate amounts as such are compiled by the payee and the information thereof is received electronically from the payee. The electronic check information is sorted and routed via 14, with appropriate electronic information added thereto to insure proper routing through the payment and clearing system to the appropriate payor bank." (Geer, Col. 9, ll. 14-16.)

	bank 10 and other banks of first and subsequent deposit (not depicted on FIG. 1) intended for various payor banks, B_1, B_2, B_3 ... B_n, collectively denoted as 16 in FIG. 1. The check information from the payment system 12 reaches the appropriate payor banks 16 for proper debiting of the accounts of check writers 1 thus completing the payment cycle. In the event of dishonor of a check by a payor bank, the process reverses as to the collection of the dishonored check, and **this information may be transmitted electronically back through payment system 12** (or by more direct means of reversal) to depository bank 10 for unwinding the transaction and for debiting of the payee's account as to the dishonored check." (Geer, Col. 9, ll. 38-51.)

Claims 47, 48 and 50 depend from claim 46. How Geer discloses the limitations found within these claims has been fully explained in the Exhibit entitled "Element by element comparison of claims 46-50 of the '988 Patent to Geer (USP 5,930,788)" that the requester presented in its request of reexamination. This Exhibit is incorporated herein as the analysis demonstrating the correlation between claim limitations and the Geer disclosure. For the convenience of the Patent Owner, this requester Exhibit is attached to the end of this Office action as an Appendix.

Claims 1, 2, 18, 26, 27 and 29 are rejected under 35 U.S.C. 102(a) as being anticipated by the ANSI/ABA X9.46-1995 document (ANSI).

The below claim charts identify the claim limitation vis-à-vis ANSI's disclosure of said limitation.

Claim 1	ANSI
A system for central management, storage and report generation of remotely captured paper transactions from documents and receipts comprising:	The ANSI X9.46 standard is an electronic data interchange protocol for the exchange of electronic digitized images of financial documents among different financial institutions involved in a payment transaction. ANSI, p. 1. The exchange occurs across diverse computing platforms. Packaged interchange content may be delivered from the originating imaging application's financial image interchange translator to

	the receiving imaging application's financial image interchange translator is through a computer network by transmitting the data electronically. ANSI, p. 15-16. "This standard is intended to improve the payments system by supporting the interchange of digitized images of financial documents, specifically check and similar paper-based instruments; facilitate the truncation of the paper at the earliest possible point in the clearing process; and support transmissions from a single transaction to many transaction serving banking payment processing applications." ANSI, p. 1.
one or more remote data access subsystems for capturing and sending paper transaction data and subsystem identification information comprising at least one imaging subsystem for capturing the documents and receipts and	The ANSI X9.46 standard is an electronic data interchange protocol for the exchange of electronic digitized images of financial documents among different financial institutions involved in a payment transaction. ANSI, p. 1. "The institution participating in check image interchange shall capture both the full front and the full back of the item. ANSI, p. 9. The definition of 'Image Capture' is found in the glossary of the standard on p. 220: "The operation of converting a human-readable image on paper to a digital representation stored in memory, or some other electronic, or optical, or electromagnetic, surfaced storage media. This is normally accomplished using some type of scanning device or camera." Transaction sets are interchanged. Transaction set contents are different for each functional group that can be interchanged. ANSI, p. 14. The function groups include 'item views'. ANSI, p. 12. 'Item Views' include "bundles of views of imaged items, item information for each view and item view data." ANSI, p. 12. "For each item, e.g., check, this standard defines mechanisms for sending and receiving both information about the item (item information) and digitized representations of the item." ANSI, p. 9. Subsystem ID: In addition to images, a data element known as 'creation computer' which "conveys the system name of the originator's host computer that was used to create and digitize the imaging data" may be transmitted. ANSI, p. 105. The 'creation computer' is a item view data element. ANSI, p. 93-94. "The institution participating in check image interchange shall capture both the full front and the full back of the item." ANSI, p. 9. This is accomplished using: some type of

	scanning device or camera. See ANSI, p. 172.
at least one data access controller for	"The data to be interchanged from the originating imaging application are packaged by the FII-translator" ANSI, p. 12.
managing the capturing and sending of the transaction data;	"The translator (FII-translator) function of the originating application produces an interchange object (i.e., a complex data structure) by translating the output of the local imaging handling, data processing, or data storage application into a standardized interchangeable 'edi' structure." ANSI, pp. 14 and 150-151.
at least one central data processing subsystem for	"The data to be interchanged from the originating imaging application are packaged by the FII-translator, and sent to the receiving imaging application." ANSI, p. 12.
processing, sending, verifying and storing	"[U]pon receipt of the interchanged data, the FII-translator will parse the incoming data for the receiving imaging application. Then, the receiving imaging application may generate acknowledgements or replies to query requests, and become the originating imaging application for a new image interchange." ANSI, p. 12. On p.14, lines 465-466, of the standard states that the 'edi' translator function of the receiving application "translates the 'edi' interchange into the locally understood data structures for subsequent storage or processing of the data by the receiver's application."
the paper transaction data and	Transaction sets are interchanged. Transaction set contents are different for each functional group that can be interchanged. ANSI, p. 14. The function groups include 'item views'. ANSI, p. 14. 'Item Views' include "bundles of views of imaged items, item information for each view and item view data." ANSI, p. 14. "For each item, e.g., check, this standard defines mechanisms for sending and receiving both information about the item (item information) and digitized representations of the item." ANSI, p. 9.
the subsystem identification information comprising	Subsystem ID: In addition to images, a data element known as 'creation computer' which "conveys the system name of the originator's host computer that was used to create and digitize the imaging data" may be transmitted. ANSI, p. 105. The 'creation computer' is a item view data element. ANSI, p. 93-94.
a management subsystem for	"[U]pon receipt of the interchanged data, the FII-translator

managing the processing, sending and storing of the of the transaction data; and	will parse the incoming data for the receiving imaging application. Then, the receiving imaging application may generate acknowledgements or replies to query requests, and become the originating imaging application for a new image interchange." ANSI, p. 12.
at least one communication network for the transmission of the transaction data	"[P]ackaged interchange content is delivered from the originating imaging application's financial image interchange translator to the receiving imaging application's financial image interchange translator is through a computer network by transmitting the packaged interchange data electronically." ANSI, pp. 16 and 199.
within and	Items are transmitted from the "Image and Data Processing Application" to the "Originating FII translator" within the originating financial institution. See ANSI, p. 202, Figure F. 1. Items are transmitted from the "Receiving FII translator" to the "Image and Data Processing Application" within the receiving financial institution. See ANSI, p. 203, Figure F.2.
between said one or more data access subsystems and said at least one data processing subsystem,	Examples of communication methods include "teleprocessing methods: links, network end point addresses, speed, data transfer protocols, etc." ANSI, pp. 172 and 199.
with the data access subsystem providing encrypted subsystem identification information and encrypted paper transaction data to the data processing subsystem.	The ANSI describes encryption and various security methods. See ANSI, pp. 55-61. Encryption of specific data elements is taught, "[e]ncryption key name..., conveys the name of the key used to encipher the contents of this functional group. The name is mutually known to the security originator and the security recipient, is unique for this relationship, and allows a particular key to be specified." ANSI, p. 57. Thus, data elements are encrypted (enciphered) at the functional group level. This is further supported by the initialization vector showing the length of the data element to be encrypted. ANSI, p. 58. As explained, one (1) type of functional group is known as 'item views.' The check images are item views. The 'creation computer' which identifies the computer that creates the image is also an item view data element. See ANSI, pp. 93 and 105. Thus, the originating institution (remote subsystem) provides encryption to both the images and the subsystem identification information.

Claims 2 and 18 depend from claim 1. How ANSI discloses the limitations found within these claims has been fully explained in the Exhibit entitled "Element by element comparison of claims 1-41 of the '988 Patent to the ANSI/ABA X9.46-1995 document, alone and in combination with the newly cited and previously cited prior art" that the requester presented in its request of reexamination. This Exhibit is incorporated herein as the analysis demonstrating the correlation between claim limitations and the ANSI disclosure. For the convenience of the Patent Owner, this requester Exhibit is attached to the end of this Office action as an Appendix.

Claim 26	ANSI
A method for central management, storage and verification of remotely captured paper transactions from documents and receipts comprising the steps of:	The ANSI X9.46 standard is an electronic data interchange protocol for the exchange of electronic digitized images of financial documents among different financial institutions involved in a payment transaction. See ANSI, p. 1. The exchange occurs across diverse computing platforms. Packaged interchange content may be delivered from the originating imaging application's financial image interchange translator to the receiving imaging application's financial image interchange translator is through a computer network by transmitting the data electronically. See ANSI, pp. 15-16. "This standard is intended to improve the payments system by supporting the interchange of digitized images of financial documents, specifically check and similar paper-based instruments, facilitate the truncation of the paper at the earliest possible point in the clearing process; and support transmissions from a single transaction to many transaction serving banking payment processing applications." ANSI, p. 1.
capturing an image of the paper transaction data at one or more remote locations and sending a captured image of the paper transaction data;	"The institution participating in check image interchange shall capture both the full front and the full back of the item." ANSI, p. 9. The ANSI X9.46 standard is an electronic data interchange protocol for the exchange of electronic digitized images of financial documents among different financial institutions involved in a payment transaction. See ANSI, p. 1. Transaction sets are interchanged. Transaction set contents are different for each functional group that can be interchanged. See ANSI, p. 16. The function groups include 'item views'. See ANSI, p. 14. 'Item Views' include "bundles of views of imaged items, item information for each view and item view data." ANSI, p. 16. "For each item, e.g., check, this standard defines mechanisms for sending and receiving both

	information about the item (item information) and digitized representations of the item." ANSI, p. 9.
managing the capturing and sending of the transaction data;	"The data to be interchange from the originating imaging application are packaged by the FII-translator." ANSI, p. 10. "The translator (FII-translator) function of the originating application produces an interchange object (i.e., a complex data structure) by translating the output of the local imaging handling, data processing, or data storage application into a standardized interchangeable 'edi' structure." ANSI, pp. 12 and 150-151.
collecting, processing, sending and \	"The data to be interchanged from the originating imaging application are packaged by the FII-translator, and sent to the receiving imaging application." ANSI, p. 12. "[U]pon receipt of the interchanged data, the FII-translator will parse the incoming data for the receiving imaging application. Then, the receiving imaging application may generate acknowledgements or replies to query requests, and become the originating imaging application for a new image interchange." ANSI, p. 12.
storing the transaction data	On p. 14, lines 465-466, of the standard states that the 'edi' translator function of the receiving application "translates the 'edi' interchange into the locally understood data structures for subsequent storage or processing of the data by the receiver's application."
at a central location;	The ANSI X9.46 standard is an electronic data interchange protocol for the exchange of electronic digitized images of financial documents among different financial institutions involved in a payment transaction. ANSI, p. l.
managing the collecting, processing, sending and storing of the transaction data;	"[U]pon receipt of the interchanged data, the FII-translator will parse the incoming data for the receiving imaging application. Then, the receiving imaging application may generate acknowledgements or replies to query requests, and become the originating imaging application for a new image interchange." ANSI, p. 12.
encrypting subsystem identification information and	The ANSI describes encryption and various security methods. See ANSI, p. 55-61. Encryption of specific data elements is taught, "[e]ncryption key name.., conveys the name of the key used to encipher the contents of this functional group. The name is mutually known to the security originator and the security recipient, is unique for this relationship, and allows a particular key to be specified." ANSI, p. 56. Thus, data elements are encrypted (enciphered) at the functional group level. This is further supported by the initialization vector showing the length of the data element to be encrypted.

	ANSI, pp. 55 and 57. As explained, one (l) type of functional group is known as 'item views.' The check images are item views. The 'creation computer' which identifies the computer that creates the image is also an item view data element. See ANSI, pp. 93-94 and 105. Thus, the originating institution (remote subsystem) provides encryption to both the images and the subsystem identification information.
the transaction data; and	Transaction sets are interchanged. Transaction set contents are different for each functional group that can be interchanged. See ANSI, p. 14. The function groups include 'item views'. See ANSI, p. 14. 'Item Views' include "bundles of views of imaged items, item information for each view and item view data." ANSI, p. 14. "For each item, e.g., check, this standard defines mechanisms for sending and receiving both information about the item (item information) and digitized representations of the item." ANSI, p. 9.
transmitting the transaction data and the subsystem identification information within and between the remote location(s) and the central location.	Packaged interchange content is delivered from the originating imaging application's FII [financial image interchange] translator to the receiving imaging application's FII [financial image interchange] translator is through a computer network by transmitting the packaged interchange data electronically. See ANSI, pp. 15-16 and 199. Items are transmitted from the "Image and Data Processing Application" to the "Originating FII translator" within the originating financial institution. See ANSI, p. 202 (Figure F.1). Items are transmitted from the 'Receiving FII translator' to the 'Image and Data Processing Application' within the receiving financial institution. See ANSI, p. 203 (Figure F.2).

Claims 27 and 29 depend from claim 26. How ANSI discloses the limitations found within these claims has been fully explained in the Exhibit entitled "Element by element comparison of claims 1-41 of the '988 Patent to the ANSI/ABA X9.46-1995 document, alone and in combination with the newly cited and previously cited prior art" that the requester presented in its request of reexamination. This Exhibit is incorporated herein as the analysis demonstrating the correlation between claim limitations and the

ANSI disclosure. For the convenience of the Patent Owner, this requester Exhibit is attached to the end of this Office action as an Appendix.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3-8, 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Campbell, et al. in view of Applicant's Admission of Prior Art (AAPA) at the time of filing and prosecution.

What Campbell, et al. discloses, teaches and suggest to one of ordinary skill in the art is discussed above and incorporated herein.

As acknowledged by the Applicant in the disclosure of the '988 patent, "[a]s is known to persons of ordinary skill in the art, the DATs 200 could also include additional devices for capturing other biometric data for additional security. These devices include facial scans, fingerprints, voice prints, iris scans, retina scans and hand geometry." ('988 Patent, Col. 6, ll. 46-50.) Moreover, the '988 patent admits:

> In addition to scanning images and text, the DAT scanner 202 also scans DataGlyph™ elements, available form Xerox Corporation. As is known to persons of ordinary skill in the art, the Xerox DataGlyph™ Technology represents digital information with machine readable data which is encoded into many, tiny, individual glyph elements. Each glyph element consists of a 45 degree diagonal line which could be as short as 1/100th of an inch

> depending on the resolution of the scanning and printing devices. Each glyph element represents a binary 0 or 1 depending on whether it slopes downward to the left or the right respectively. Accordingly, DataGlyph™ elements can represent character strings as ASCII or EBCDIC binary representations. Further, encryption methods, as known to persons of ordinary skill in the art encrypt the data represented by the DataGlyph™ Technology. ('988 Patent, Col. 5, l. 58 to Col. 6, l. 6.)

In addition Campbell, et al. teaches:

> Since there are no universally adopted standards regarding imaging formats and compression standards, the node 12 contains a signal converter 50 which converts signals received by the node 12 in one format used by a sender into another format usable by a recipient. The converter 50 uses information stored in the database 46 regarding the formats and compression algorithms involved. This information will be relayed from the database 46 to the signal converter 50 by the node controller 42. The converter 50 may contain multi-vendor image format and compression processors which can uncompress and reconstruct images from one imaging system to another. (Campbell, et al., Col. 7, ll. 15-27.)

Thus, the sending institution 14 may compress the images before transmitting to the node 12. Bitmap compression is one known compression standard. The node is designed to handle all compression formats.

As further taught in Campbell, et al.: "The assembler/disassembler 40 [at the processing node 12] may read certain overhead information accompanying the images, including frame relay flags, identifiers, address bits, indicators, and other overhead information." (Campbell, et al., Col. 5, ll. 2-5.) "A storage device 48, which may be an electronic mailbox as shown in FIG. 2, stores at least temporarily some or all of check images received by the node 12. A signal converter 50 contains information used by the node 12 to convert images in a format used by the sending institutions into a format understandable by the receiving institution." (Campbell, et al., Col. 4, ll. 45-52.) "The storage device 48 may be a rewritable mass storage device which can at least temporarily store or archive compressed or uncompressed check images prior to transmission to their destinations." (Campbell, et al., Col. 6, ll. 57-60.)

Because all of the above were well known instrumentalities to manipulate, transmit or store data, one of ordinary skill in the art at the time the invention was created would find it obvious to use these well known technologies in order to enable the claimed invention within the instant '988 Patent, absent a showing of criticality for a particular instrumentality as a necessity of implementation of the disclosed invention.

Claims 9-16, 19-21 and 30-35 rejected under 35 U.S.C. 103(a) as being unpatentable over Campbell, et al. in view of Owens et al. (USPN 4,264,808) and Minoli.

What Campbell, et al. discloses, teaches and suggests is either discussed above or discussed in the Exhibit entitled "Element by element comparison of claims 1-41 of the '988 Patent to Campbell, et al. (U.S. Patent No. 5,373,550)" and is incorporated herein. What Minoli discloses, teaches and suggests is either discussed above or discussed in either the Exhibit entitled "Element by element comparison of claims 42-45 of the '988 to Minoli, "Imaging in Corporate Environments" or the Exhibit entitled "Element by element comparison of claims 1-41 of the '988 Patent to Campbell, et al. (U.S. Patent No. 5,373,550)" and is likewise incorporated herein. Moreover, what Owens et al. teaches and suggests is discussed in the Exhibit entitled "Element by element comparison of claims 1-41 of the '988 Patent to Campbell, et al. (U.S. Patent No. 5,373,550)" and is incorporated herein. Moreover, as admitted by the '988 Patent disclosure: "[a]s is known to persons of ordinary skill in the art, the DAT 200 could also be custom designed around a general purpose network computer running other operating systems as long as the chosen operating system provides support for multiprocessing, memory management and dynamic linking required by the DataTreasury™ System 100." ('988 Patent, Col. 6, ll. 46-60.) In an analogous system for electronic image processing Owens et al. teaches and suggests what is stated in the Exhibit entitled "Element by element comparison of claims 1-41 of the '988 Patent to Campbell, et al. (U.S. Patent No. 5,373,550)" where the above identified claims are discussed within said Exhibit and is incorporated herein.

Claim 9 details further elements of the data management subsystem of the central data processing subsystem and the prior art teaches and suggests such subsystems, such as a "polling server" (Minoli, pp. 33 and 350; Owens, et al., Col. 12, ll. 12-16); a database (Owens, et al., Col. 12, ll. 18-27); a report generator (Owens, et al., Col. 14, ll. 12-18); a CPU (Owens, et al., Col. 12, ll. 27-36); a domain name services program (Owens, et al., Col. 21, ll. 1-17; Minoli, pp. 248-49); and a memory hierarchy (Owens, et al., Col. 12, ll. 23-27). Claim 19 parallels claim 9. Claim 19 depends on claim 18, which describes a collecting subsystem in between the remote and central subsystems. Claim 19 specifies that the data management subsystem (controller or CPU) of the collecting (intermediate) subsystem of claim 18 comprises a server; a database; a CPU; and a domain name services program; and a memory hierarchy. Each of these limitations is expressly taught by either Owens or Minoli. Claims 20-21, dependent on claim 19, are drawn to the memory hierarchy of claim 19. Claim 20 adds limitations of a primary memory for collecting transaction data and a secondary memory for backup storage of the transaction data. Campbell, et al., describes temporary and long-term archiving of the images at the check processing node 12. (Campbell, et al., Col. 7, ll. 6-8.) Claim 21 describes a type of magnetic tape storage device. Minoli describes several image storage systems including: CD-ROMs, WORMs, recordable CD, and magnetooptic (MO) storage. See Minoli, Chapter 7, at page 219. The limitation of claim 11, wherein the memory hierarchy comprises at least one primary memory for storage and at least one secondary memory for storage, is specifically taught by Owens, Col. 12, ll. 23-27. Claim 12, dependent on claim 11 and thus claim 9, describes the memory hierarchy of claim 9 as comprising a WORM jukebox and an optical storage jukebox. Both types of storage may be used to store check images as taught in Minoli on pages. 30-31 and Chapter 7. Claim 13, dependent on claim 12, specifies that the optical storage jukebox comprises read only memory technology including compact disc read only memory. CD-ROM optical storage is described as being faster (150 kbps) than video servers. Minoli, p. 33. Claim 14 is drawn to the database of claim 9 comprising at least one predefined template for portioning the stored transaction data into panels. Owens, et al. discusses ways of storing the data into predefined fields, "machine pattern recognition units" which include "a conventional character recognition reader which read the decompressed image of a document 18 and ascertains the monetary amount thereon." (Owens, et al., Col. 23, ll. 44-47.) Claim 15 depends from claim 14 and adds that "a data entry gateway for correcting errors in the panels of stored transaction data." Owens describes this limitation wherein transaction data is sent to a workstation wherein an operator may correct any errors through viewing the image, "[w]hen data is missing, the associated image is routed to one of the processors 396, 398 for display on one of the CRTS 150 where an operator keys in the appropriate data on an associated keyboard 152." (Owens, Col. 23, ll. 47-52.) Claim 30 parallels claim 9. Claims 31-32, parallel to claims 14-15, are dependent on claim 30. Thus, each of these limitations is taught by Minoli and Owens, et al. Claims 34-35 are dependent on claim 32, but add limitations that are taught by Campbell, et al. These limitations include: transmitting within the remote subsystem (Campbell, et al., FIG. 1); transmitting between the remote and central subsystems (Campbell, et al., Col. 2, ll. 26-32); transmitting within the central subsystem (Campbell, et al., Col. 3, ll. 41-52); connecting the remote to the central subsystem (Campbell, et al. Col. 3, ll. 20-43); and connecting the central subsystem to the remote subsystem (Campbell, et al., Col. 3, ll. 32-52).

Because the above identified claims are directed to "subsystems" that either can be categorized as support for multiprocessing, memory management, data generation, image file capture, storage or retrieval or dynamic linking for communication between systems, one of ordinary skill in the art would find it obvious to incorporate the teachings found in Owens et al. into the check interchange system of Campbell, et al. in order to facilitate an effective and efficient operation of Campbell, et al.'s check interchange system in order to avoid the errors identified in Owens et al. background of the invention.

Claims 10 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Campbell, et al. in view of Owens, et al. and Minoli as applied to claims 9 and 32 above, and further in view of AAPA.

Claim 10 and 33 describe polling for biometric and signature data and comparing said data for identity verification. As acknowledged by the Applicant in the disclosure of the '988 patent, "[a]s is known to persons of ordinary skill in the art, the DATs 200 could also include additional devices for capturing other biometric data for additional security. These devices include facial scans, fingerprints, voice prints, iris scans, retina scans and hand geometry." ('137 Patent, Col. 6, ll. 53-58.) Moreover, the '137 patent admits:

> In addition to scanning images and text, the DAT scanner 202 also scans DataGlyph™ elements, available form Xerox Corporation. As is known to persons of ordinary skill in the art, the Xerox DataGlyph™ Technology represents digital information with machine readable data which is encoded into many, tiny, individual glyph elements. Each glyph element consists of a 45 degree diagonal line which could be as short as 1/100th of an inch depending on the resolution of the scanning and printing devices. Each glyph element represents a binary 0 or 1 depending on whether it slopes downward to the left or the right respectively. Accordingly, DataGlyph™ elements can represent character strings as ASCII or EBCDIC binary representations. Further, encryption methods, as known to persons of ordinary skill in the art encrypt the data represented by the DataGlyph™ Technology. ('137 Patent, Col. 5, l. 64 to Col. 6, l. 12.)

Because all of the above were well known instrumentalities to manipulate, transmit or store data, one of ordinary skill in the art at the time the invention was created would find it obvious to use these well known technologies in order to enable the claimed invention within the instant '988 Patent, absent a showing of criticality for a particular instrumentality as a necessity of implementation of the disclosed invention.

Claims 17, 22-25, 36-41 and 43-45 rejected under 35 U.S.C. 103(a) as being unpatentable over Campbell, et al. in view of Minoli.

What Campbell, et al. discloses, teaches and suggests is either discussed above or discussed in the Exhibits entitled "Element by element comparison of claims 1-41 of the '988 Patent to Campbell, et al. (U.S. Patent No. 5,373,550)" and "Element by element comparison of claims 42-45 of the '988 Patent to Campbell, et al. (U.S. Patent No. 5,373,550)" and are incorporated herein. What Minoli discloses, teaches and suggests is either discussed above or discussed in either the Exhibit entitled "Element by element comparison of claims 42-45 of the '988 to Minoli, "Imaging in Corporate Environments" or the Exhibit entitled "Element by element comparison of claims 1-41 of the '988 Patent to Campbell, et al. (U.S. Patent No. 5,373,550)" and is likewise incorporated herein.

Claim 17, dependent on claim 16, describes modems for connecting the first LAN to the WAN and a bank of modems for connecting the second LAN to the WAN. Using a dial-up or modem connection to a WAN was well known in the art and is specifically described in Minoli. See Minoli, p. 263. Claim 22 depends on claim 18, which describes a collection subsystem in between the remote and central subsystems. Claim 22 adds further architecture to the communication network of claims 1 and 18, such as a first, second, and third LANs corresponding to the remote subsystem, the collection subsystem, and the central subsystems, and a WAN for transmitting data between the remote and the central subsystems. Minoli teaches that several LANs may be interconnected through a WAN, such as in a banking or check processing environment. See Minoli, pp. 31; 269-271. Claims 23-25, dependent on claim 22, describe hardware that is typically part of a communication network and that is expressly taught by Minoli. These claims add limitations of a modem (Minoli, p. 263); a bank of modems (Minoli, p. 263); routers (Minoli, p. 269); a carrier cloud using frame relay (Minoli, p. 268); and a network switch (Minoli, p. 268). For Claims 36 and 38-41 are each dependent on claim 29, which is disclosed by Campbell et al. Claim 36 (the method embodiment of claim 18) describes a collecting step at an intermediate location, such as at the intermediary bank 14. (Campbell, et al., Col. 2, ll. 46-49.) Claim 36 also requires a transmitting of the transaction data within the intermediate location and between the intermediate locations and the central locations. As described above with respect to claim 18, Campbell, et al. teaches that such a collection may occur at an intermediary bank 14 (intermediary) that transmits check images between the bank of first deposit and the processing node 12. (Campbell, et al. Col. 2, ll. 46-49.) Claim 37, dependent on claim 36 and thus 29 (both disclosed by Campbell) adds limitations relating to: polling (Campbell, et al., Col. 3, ll. 30-39); storing (Campbell, Col. 3, ll. 43-58); and dynamically assigning (Campbell, Col. 3, ll. 30 - 39; Minoli, p. 248-49). Claims 38-41, add further steps, relating to connecting and transmitting among the three locations. Campbell, et al. teaches these connections and transmissions among 3 tiers, specifically as to the bank 14, the node 12, and the bank 16. However, these connecting and transmitting steps are directly applicable to the connecting and transmitting among the bank 36, the bank 14, and the processing node 12 (specifically described as in claims 18 and 36). These include: transmitting between the remote and intermediate (Campbell, et al., Col. 2, ll. 25-33); transmitting between the intermediate and central (*Id.*); connecting the remote to the intermediate location (Campbell, et al., Col. 3, ll. 30-39); connecting the intermediate to the central location (Campbell, et al., Col. 2, ll. 25-33; Col. 3, ll. 30-39); connecting the intermediate to an external network (Campbell, et al., Col. 2, ll. 25-33; Col. 2, ll. 50-63; Col. 3, ll. 30-39); connecting the central location to the communication network (Campbell, et al., Col. 2, ll. 25-33; Col. 2, ll. 50-63; Col. 3, ll. 30-39); packaging the transaction data into frames (Campbell, et al., Col. 3, ll. 30-39); and transmitting the frames through the external communication network (Campbell, et al., Col. 3, ll. 30-39).

Therefore, all of the limitations of the above identified depend claims are either disclosed, taught or suggested in the prior art as well known instrumentalities for implementing check interchange systems and can be categorized as either communication support, network architecture, storage, security, connection and transmission between systems and data collection and storage, and absent a showing of criticality in the necessity of having one of the particular claimed means for manipulating data, said means would be obvious to one of ordinary skill in the art at the time the invention was created.

Claims 43-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Campbell, et al. in view of Geer, ANSI or Minoli.

What Campbell, et al., Geer, ANSI and Minoli disclose, teach and suggest to one of ordinary skill in the art has been either discussed above or discussed in the Exhibits identified above and is incorporated herein.

For claims 43-45, Campbell teaches the existence of three subsystems, one at each of the sending bank 14, the node 12, and the receiving bank 16, each expressly or inherently having local area network, and a wide area network (telephone network 10) for transmitting images between the 3 subsystems in a tiered architecture (See, FIG. 1 directional arrows of the communications lines 22, 24, 26, and 28, as well as FIG. 2 directional arrows). The local area network ("LAN") connecting the subsystems of the node 12 is expressly taught. (Campbell, et al., Col. 4, ll. 56-58.) The LANs at each of the sending and receiving banks are inherent to the nature of the equipment at each bank. Campbell further teaches that the check imaging equipment 18 ("an imaging subsystem for capturing images of documents and receipts") and/or 32 may be "large multiworkstation systems available from companies such as IBM, UNISYS, or NCR." (Campbell, et al. Col. 3, ll. 10-12 and 46-48.) One skilled in the art would understand that the term "large multiworkstation systems" means that the equipment 18 includes multiple components interconnected by a local area network. LANs were commonplace at banking institutions by the early 1990's, as is evidenced by the express teaching of the LAN at the check processing node 12. Thus, Campbell, et al. alone teaches all of the hardware components of claims 42-45. Campbell, et al. does not expressly teach capturing images of "receipts." It would have been obvious to apply the teaching of Campbell to process any financial (or other paper) document, including receipts, as broadly taught by Geer, ANSI or Minoli, because doing so would desirably eliminate the need to handle such documents in paper form. See e.g. ANSI p. 1 ("[It] is intended to improve the payments system by supporting the interchange of digitized images of financial documents, specifically checks and similar paper-based instruments; facilitate the truncation of the paper at the earliest possible point in the clearing process; and support transmissions from a single transaction to thousands of transactions serving all banking payment processing applications.")

Correspondence

All correspondence relating to this *ex parte* reexamination proceeding should be directed as follows:

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Any inquiry concerning this communication or earlier communications from the Examiner, or as to the status of this proceeding, should be directed to the Central Reexamination Unit at telephone number (571) 272-7705.

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CONF:

APPENDIX

Element by element comparison of claims 1-41 of the '988 Patent to Campbell, et al. (U.S. Patent No. 5,373,550).

'988 Patent	'550 to Campbell, et al.
1. A system for central management, storage and report generation of remotely captured paper transactions from documents and receipts comprising:	Checks used to effectuate commercial and private transactions may be cleared through the banking system by transporting images of those checks between sending institutions and receiving institutions in forward and reverse flow paths between banks of first deposit and payor banks. The check images are transported through a public switched telephone network which contains a special check imaging node which provides a network based check clearing service for customers of telephone network. The check imaging node receives images of checks from institutions which subscribe to this service and routes those images through the telephone network to intended subscriber and non-subscriber recipients. Campbell, et al., Abstract.
1a. one or more remote data access subsystems for	Remote data access subsystem = sending institution 14. "The sending institution 14 is a subscriber to the telecommunications services provided by the node 12." "For example, the sending institution 14 may be a payor bank and the receiving institution may be a bank of first deposit which are involved in a processes of returning a check dishonored by institution 14 to the institution 16. Alternatively, the sending institution 14 may be a bank of first deposit which is in the process of forwarding checks to an institution 16 which is acting as a payor bank." Campbell, et al., Col. 2, lns. 32-45.
capturing and	"The sending institution 14 possesses check imaging equipment 18 which produces electrical or optical signals representing the image of a check." Campbell, et al., Col. 2, ln 64-66.
sending	"The images produced by the equipment 18 are directed to a network interface 20 which converts the signals from the equipment 18 into signals suitable for transmission on the telephone network 10." Campbell, et al., Col. 3, ln 17-20.
paper transaction data and Subsystem identification information comprising	"The controller 42 may read some data accompanying check images, for example, it may identify that TCP/IP protocol information accompanying those images. That information may instruct the node 12 about the identity of the sending institution and the intended receiving institution." Campbell, et al., Col. 5, ln 23-28. "The assembler/disassembler 40 [at the processing node 12] may read certain overhead information accompanying the images, including frame relay flags, identifiers, address bits, indicators, and other overhead information." Campbell, et al., Col. 5, ln 2-5.
at least one imaging subsystem for capturing the documents and receipts and	"The sending institution 14 possesses check imaging equipment 18 which produces electrical or optical signals representing the image of a check. ... The imaging equipment may be large multiworkstation systems available from companies such as IBM, UNISYS, or NCR. Campbell, et al.,Col. 2, ln. 64 – Col. 3, ln. 12.
at least one data access controller for managing the capturing and sending of the transaction	"The images produced by the equipment 18 are directed to a network interface 20 which converts the signals from the equipment 18 into signals suitable for transmission on the telephone network 10."

'988 Patent	'550 to Campbell, et al.
data;	Campbell, et al., Col. 3, lns. 17-20.
1b. at least one central data processing subsystem for	The network 10 contains at least one check image processing node 12 which provides check clearance services. The node 12 receives images of checks from a sending institution 14 transmitted through the network 10. The node 12 processes the check images and sends them to a receiving institution 16." Campbell, et al., Col. 2, lns. 26-32.
processing, sending, verifying and storing	"[T]he processing node 12 receives check images and performs certain processing procedures on those images, including at least temporary storage of the received check images." Campbell, et al., Col. 3, lns. 43-58. "The node 12 contains a frame relay assembler/disassembler 40 which receives frames of digital information representing check images sent by service subscribers to the network 38. The assembler/disassembler 40 also transmits frames of digital information representing check images to the network 38 after those images have been processed by the node 12. A node controller and router 42 controls the routing of check images to their intended destinations, both in the controller and to their ultimate destinations outside the network 38." Campbell, et al., Col. 3, lns. 30 – 39. Verify: "The controller 42 may receive instructions from the work center 54 through the interface 52 to control changes made to the information in the database 46. These changes may include the addition or changes to personal identification numbers or bank related data." Campbell, et al., Col. 5, lns. 31 -39.
the paper transaction data and the subsystem identification information comprising	"The controller 42 may read some data accompanying check images, for example, it may identify that TCP/IP protocol information accompanying those images. That information may instruct the node 12 about the identity of the sending institution and the intended receiving institution." Col. 5, ln 23-28.
a management subsystem for managing the processing, sending and storing of the of the transaction data; and	"A node controller and router 42 controls the routing of check images to their intended destinations, both in the controller and to their ultimate destinations outside the network 38." Col. 3, ln 30 – 39. "The node controller and router 42 provides interfaces to systems external to the node 12. It is connected to all the other subsystems in the node 12 by way of the local area network 56. ...The controller 42 may also be configured to handle information encrypted by sending institutions to provide security for the images transported by the network 38. The controller 42 may have its own encryption and decryption equipment to provide a secure environment in the node 12." Campbell, et al., Col 5, lns. 14-60.
1c. at least one communication network for the transmission of the transaction data	"The image of a check is created in a sending institution and sent to a receiving institution by means of the public switched telephone network." Campbell, et al., Col. 2, lns. 20-22. "The public switched telephone network 10 may be a telephone network provided by a local exchange carrier ...The network may be digital or analog. Two examples of suitable digital networks are a packet network and a frame relay network, such as the existing packet and frame relay networks now provided by carriers such as AT&T." Campbell, et al., Col. 2, lns. 50-63.

'988 Patent	'550 to Campbell, et al.
within and	"A local area network 56 connects the subsystems of the node 12 described above." Campbell, et al., Col. 4, lns. 56-58. "The images produced by the equipment 18 are directed to a network interface 10 which converts the signals from the equipment 18 into signals suitable for transmission on the telephone network 10." Campbell, et al., Col. 3, lns. 17-20.
between said one or more data access subsystems and said at least one data processing subsystem,	"The network access lines 22 may comprise any form of transmission line suitable for carrying the expected volume of check image traffic between the sending institution 14 and the telephone network 10. For example, the network access lines 22 may comprise one or more digital transmission lines operating at speeds of about 2400 bits per second to about 1.544 megabits per second or more. Connection to the network 10 may be by an ordinary dial up line or by a dedicated private line." Campbell, et al., Col. 3, lns. 20-43.
1d. with the data access subsystem providing encrypted subsystem identification information and encrypted paper transaction data to the data processing subsystem.	"The controller 42 may also be configured to handle information encrypted by sending institutions to provide security for the images transported by the network 38. The controller 42 may have its own encryption and decryption equipment to provide a secure environment in the node 12." Campbell, et al., Col. 5, lns. 55-60. This implies that the sending bank 14 is capable of sending encrypted information. This information includes check images and also information "about the identity of the sending institution." Campbell, et al., Col. 5, lns. 26-27.
2. A system as in claim 1 wherein said one or more data access subsystems further comprise at least one scanner for capturing the paper transaction data.	Campbell et al. "The sending institution 14 possesses check imaging equipment 18 which produces electrical or optical signals representing the image of a check. ... The imaging equipment may be large multiworkstation systems available from companies such as IBM, UNISYS, or NCR." Campbell, et al., Col. 2, ln. 64 – Col. 3, ln 12.
3. A system as in claim 2 wherein said one or more data access subsystems also capture electronic transactions from credit cards, smart cards and debit cards, signature data or biometric data, further comprising:	Campbell et al. in view of prior art admission
at least one card interface for capturing the electronic transaction data;	Applicants' admission
at least one signature interface for capturing an electronic signature; and	Applicants' admission

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'988 Patent	'550 to Campbell, et al.
at least one biometric interface for capturing biometric data.	Applicants' admission
4. A system as in claim 3 wherein said at least one data access controller successively transforms the captured transaction data to a bitmap image, a compressed bitmap image, an encrypted, compressed bitmap image and an encrypted, compressed bitmap image tagged with information identifying a location and time of the transaction data capture.	Campbell et al. in view of prior art admission "Since there are no universally adopted standards regarding imaging formats and compression standards, the node 12 contains a signal converter 50 which converts signals received by the node 12 in one format used by a sender into another format usable by a recipient. The converter 50 uses information stored in the database 46 regarding the formats and compression algorithms involved. This information will be relayed from the database 46 to the signal converter 50 by the node controller 42. The converter 50 may contain multi-vendor image format and compression processors which can uncompress and reconstruct images from one imaging system to another." Campbell, et al., Col. 7, lns. 15 – 27. Thus, the sending institution 14 may compress the images before transmitting to the node 12. Bitmap compression is one known compression standard. The node is designed to handle all compression formats. "The assembler/disassembler 40 [at the processing node 12] may read certain overhead information accompanying the images, including frame relay flags, identifiers, address bits, indicators, and other overhead information." Campbell, et al., Col. 5, ln 2-5.
5. A system as in claim 4 wherein said one or more data access subsystems further comprise digital storage for storing the tagged, encrypted, compressed bitmap image.	Campbell et al. in view of prior art admission "A storage device 48, which may be an electronic mailbox as shown in FIG. 2, stores at least temporarily some or all of check images received by the node 12. A signal converter 50 contains information used by the node 12 to convert images in a format used by the sending institutions into a format understanable by the receiving institution." Campbell, et al., Col. 4, lns. 45-52. "The storage device 48 may be a rewritable mass storage device which can at least temporarily store or archive compressed or uncompressed check images prior to transmission to their destinations." Campbell, et al., Col. 6, lns 57-60.
6. A system as in claim 5 wherein said at least one card interface initiates the electronic transaction.	Campbell et al. in view of prior art admission Applicants' admission
7. A system as in claim 6 wherein said one or more data access subsystems further comprise at least one printer for printing the paper transaction initiated by said at least one card interface.	Campbell et al. in view of prior art admission Applicants' admission
8. A system as in claim 7 wherein the paper transaction printed by said at least one printer	Campbell et al. in view of prior art admission

'988 Patent	'550 to Campbell, et al.
includes data glyphs.	Applicants' admission
9. A system as in claim 1 wherein said data management subsystem of said at least one data processing subsystem comprises:	Campbell et al. in view of Owens, et al. (4,264,808) and Minoli
at least one server for polling said one or more remote data access subsystems for transaction data;	"As the 'images' of the documents 18 included in a transaction group or batch are received in the form of entry records 74 (FIG. 3B) by the communication means 88, they are routed to the image file means 100 via a system bus 102 which may be any conventional high-speed bit serial bus." Owens, et al., Col. 12, lns 12-16. Minoli describes several servers suitable in imaging applications. Minoli, pg. 33; 250.
a database subsystem for storing the transaction data in a useful form;	All images and data coming into or going out of the IPC 14 are controlled by the communication means 88, which performs all handshake protocol, logical addressing and communications packaging, and which directs all incoming images and data to the appropriate file means, as for example, image file means 100. The image file means 100 is processor controlled and broadly includes a primary storage 104 which represents, for example, a plurality of high-capacity magnetic discs and a back-up storage or archival file system, shown, for example, as a video disc 106. Owens, et al., Col. 12, lns 18-27.
a report generator for generating reports from the transaction data and providing data to software applications;	"The data associated with a transaction group of documents 18 is extracted from the data file means 114, and is put in the appropriate format by a conventional interface 124. From the interface 124, the data associated with the "on-us" documents 18 is presented in the desired format to the conventional application systems 126 where reports and application posting are performed." Owens, Col. 14, lns 12-18.
at least one central processing unit for managing the storing of the transaction data;	"A system manager 108 at the IPC 14 (FIG. 1) provides common support functions such as operator consoles 110 (only one being shown), line printers (not shown), program libraries, and non-volatile storage and retrieval of system information needed by other subsystems. The system manager 108 also provides the operator interface to all subsystems of the banking system 10, and conventionally provides the control of initiation, termination and re-start processes." Owens, Col. 12, lns 27-36.
a domain name services program for dynamically assigning one of said at least one server to receive portions of the transaction data for balancing the transaction data among said at least one server; and	"The communications controllers 232, 234, and 236 (FIG. 5A) act as buffers in controlling the flow of the entry records 74 to the communications nodes 246, 248 which also include memory to store portions of an entry record 74. Conventional direct link adapters 252 are used to couple the communication nodes 246, 248 to the system bus 102. When all the portions of an entry record 74 are received at one of the communication nodes 246, 248 all of these portions of an entry record are then routed to the image file means 100 (FIG. 1) under the control of an image file processor 254 (FIG. 5B) which is included in the image file means 100. When all the entry records 74 for a transaction group are received at the image file means 100, an end of documents 18 signal from the input hopper 24 shown in

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	FIG. 3A indicates this fact to the system manager 108." Owens, Col. 21, lns 1-17. "Bridges connect two or more LANs at the MAC layer. A bridge receiving packets (frames of information will pass the packets to the interconnected LAN based on some forwarding algorithm selected by the manufacturer (explicit route, dynamic address filtering, static address filtering, etc.) Minoli, p. 248-49.
a memory hierarchy.	"The image file means 100 is processor controlled and broadly includes a primary storage 104 which represents, for example, a plurality of high-capacity magnetic discs and a back-up storage or archival file system, shown, for example, as a video disc 106." Owens, Col. 12, lns 23-27.
10. A system as in claim 9 wherein said at least one server also polls for biometric and signature data, said database stores the biometric data and the signature data, and said at least one central processing unit verifies the biometric data and the signature data.	Campbell et al. in view of Owens, et al. (4,264,808) and Minoli and prior art admission Applicants' admission "Signature cards or images 166 which are input into the system 10 via the ILU 22 in FIG. 2 are data completed as non-dollar batches by the data development means 112 and are used to derive account and control information therefrom; they are placed in the data file means 114 (FIG. 1)." Owens, et al., Col. 16, lns 20- 26. "With regard to FIG. 8, the various reports (non-image application reports) shown as 214, various reporting data 216, the associated images 218 from the image file means 100, qualified transaction data 220 from the data file means 114 and the associated signatures 222 from a signature file means located at IPC 14 are used to create image reports 224 at the associated IPC 14." Owens, et al., Col. 19, lns 3-9.
11. A system as in claim 9 wherein said memory hierarchy comprises at least one primary memory for storage of recently accessed transaction data and at least one secondary memory for storage of other transaction data.	Campbell et al. in view of Owens, et al. (4,264,808) and Minoli "The image file means 100 is processor controlled and broadly includes a primary storage 104 which represents, for example, a plurality of high-capacity magnetic discs and a back-up storage or archival file system, shown, for example, as a video disc 106." Owens, et al., Col. 12, lns 23-27. "The image file means 100 (FIG. 1) is shown in more detail in FIG. 5B. Basically, the function of the image file means 100 is to store the raw images or entry records 74 received from the POAs 12, and consequently, any conventional storing means may be used. For example, the processor 254 may be a conventional processor such as an NCR Criterion 8570 with two megabytes of memory, with the processor 254 being used to write the entry records 74 on conventional memory units such as magnetic disc units 256, 258, and 260 (such as NCR 6550 disc units) which comprise the primary storage 104 (FIG. 1). ...The back-up storage or archival storage system shown as a video disc 106 in FIG. 1 may include an conventional system such as the video recorders 274, 276, and 278 shown in FIG. 5B."

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	Owens, et al., Col. 21, lns 17-38.
12. A system as in claim 11 wherein said at least one secondary memory comprises at least one write once read many jukebox and at least one optical storage jukebox.	Campbell et al. in view of Owens, et al. (4,264,808) and Minoli Minoli displays each of an optical jukebox (pg. 30), a WORM jukebox (pg. 31), and a video jukebox (pg. 28). Owens, et al. describes its back-up storage as a video disc, video recorder or magnetic disc. Col. 21, lns 35-39; Col. 22, lns 33-35.
13. A system as in claim 12 wherein said at least one optical storage jukebox comprises read only memory technology including compact disc read only memory form factor metallic write once read many disc.	Campbell et al. in view of Owens, et al. (4,264,808) and Minoli CD-ROM optical storage is described as being faster (150 kbps) than video servers. Minoli, p. 33.
14. A system as in claim 9 wherein said database subsystem comprises at least one predefined template for partitioning the stored transaction data into panels and identifying locations of the panels.	Campbell et al. in view of Owens, et al. (4,264,808) and Minoli MPR (machine pattern recognition) units connected to processors at the IPC (FIG. 5C) "include[] a conventional character recognition reader which reads the decompressed image of a document 18 and ascertains the monetary amount thereon." Owens, et al., Col. 23, lns 44-47.
15. A system as in claim 14 wherein said data processing subsystem further comprises a data entry gateway for correcting errors in the panels of stored transaction data.	Campbell et al. in view of Owens, et al. (4,264,808) and Minoli "After completion at the MPR unit 140, all the developed data for a document 18 is analyzed for completeness. When data is missing, the associated image is routed to one of the processors 396, 398 for display on one of the CRTS 150 where an operator keys in the appropriate data on an associated keyboard 152. The image display controllers 410 and 412 have conventional decompression units associated therewith for the purpose of permitting operator viewing of the images from the file means 100. The operators complete the data completion function 148 (FIG. 10) by keying in the appropriate data such as monetary amounts (if necessary) while using the keyboards 152." Owens, et al., Col. 23, lns 47-52.
16. A system as in claim 1 wherein said at least one communication network comprises:	Campbell et al.
at least one first local area network for transmitting data within a corresponding one of	"The imaging equipment may be large multiworkstation systems available from companies such as IBM, UNISYS, or NCR." Campbell, et al., Col. 3, ln. 10-12. "The images produced by the equipment

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said one or more remote data access subsystems;	18 are directed to a network interface 20 which converts the signals from the equipment 18 into signals suitable for transmission on the telephone network 10." Campbell, et al., Col. 3, ln 17-20. "The output of the network interface 20 is connected to one or more network access lines 22 in FIG. 1. The network access lines 22 may comprise any form of transmission line suitable for carrying the expected volume of check image traffic between the sending institution 14 and the telephone network 10. For example, the network access lines 22 may comprise one or more digital transmission lines operating at speeds of about 2400 bits per second to about 1.544 megabits per second or more. Connection to the network 10 may be by an ordinary dial up line or by a dedicated private line." Campbell, et al., Col. 3, ln 20-31.
at least one second local area network for transmitting data within a corresponding one of said at least one data processing subsystem; and	"A local area network 56 connects the subsystems of the node 12 described above." Campbell, et al., Col. 4, lns. 56-58. "The node controller and router 42 provides interfaces to systems external to the node 12. It is connected to all the other subsystems in the node 12 by way of the local area network 56. The controller 42 provides access to the database 46 and directs check images to appropriate subsystems in the node 12 connected to the local area network 56. The controller 42 also routes the check images from the node 12 to their ultimate destinations by way of the assembler/disassembler 40 and the frame relay network 38. The controller 42 may read some data accompanying check images, for example, it may identify that TCP/IP protocol information accompanying those images." Campbell, et al., Col. 5, lns. 14-26.
at least one wide area network for transmitting data between said one or more remote data access subsystems and said at least one data processing subsystem.	The public switched telephone network 10 may be a frame relay network, a WAN. Campbell, et al., Col. 2, ln 61.
17. A system as in claim 16 wherein said at least one communication network further comprises:	Campbell et al. in view of Minoli "Connection to the network 10 may be by an ordinary dial up line or by a dedicated private line." Campbell, et al., Col. 3, lns 29-31.
at least one modem for connecting said at least one first local area network of said one or more data access subsystems to a corresponding one of said at least one second local area network of said at least one data processing subsystem through said at least one wide area network; and	Dial-up link between LAN routers. This approach involves the use of modems connected to the LAN server (bridge or router), to utilize the analog public telephone network. Circuit switching implies that the communications channel is not dedicated 24 h per day, but must be brought on line when needed (via a process called call setup) and then taken down when no longer needed. Minoli, p. 263.
at least one bank of modems for connecting said at least one second local area network of	Dial-up link between LAN routers. This approach involves the use of modems connected to the LAN server (bridge or router), to utilize the

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said at least one data processing subsystem to a corresponding some of said at least one first local area network of said one or more data access subsystems through said at least one wide area network.	analog public telephone network. Circuit switching implies that the communications channel is not dedicated 24 h per day, but must be brought on line when needed (via a process called call setup) and then taken down when no longer needed. Minoli, p. 263.
18. A system as in claim 1 further comprising at least one data collecting subsystem for collecting and sending the electronic or paper transaction data comprising a further management subsystem for managing the collecting and sending of the transaction data.	Campbell et al. A bank of first deposit 36 (remote subsystem) may transmit images through an intermediary bank 14 (collecting subsystem), which forwards received images to the check processing node 12 (central subsystem). Check images may be transmitted in a "forward flow path from a bank of first deposit [through the check processing node 12] to a payor bank." Campbell, et al., Col. 7, lns. 65-68. The bank of first deposit may have check processing equipment for generating images of the checks. Campbell, et al., Col. 4, lns 18-21; Col. 3, lns 46-48. Thus, the bank of first deposit 36 may be considered a remote data access subsystem that transmits images to the check processing node 12 (a central data access subsystem), for the forward presented of check images. Thus, this may be considered another teaching of claim 1. Furthermore, an intermediate bank 14 may be located in between the bank of first deposit 36 and the check processing node 12, "[o]ne or both institutions 14 and 16 may also be check clearance flows between a bank of first deposit and a payor bank." Campbell, et al., Col. 2, lns 46-49. Thus, the workflow is: (1) images are captured at the bank of first deposit 36; (2) the images are transmitted from the bank of first deposit 36 to an intermediate bank 14; the images are transmitted from the intermediate bank 14 to the check processing node 12.
19. A system as in claim 18 wherein said further data management subsystem of said at least one data collecting subsystem comprises:	Campbell et al. in view of Owens, et al. (4,264,808) and Minoli Intermediary bank 14 = data collecting subsystem
at least one server for polling said one or more remote data access subsystems for transaction data;	Hardware at a receiving bank: "Check images are received in a network interface 30 in the receiving institution 16. The interface 30 transforms the signals from the network 10 into a form suitable for use by check image processing equipment 32 located in the receiving institution 16. The check image processing equipment 32 may be similar to the imaging equipment 18 located in the sending institution 14. The equipment 32 may also be facsimile equipment, character recognition equipment, e-mail systems, or any other image processing equipment by which the images received may be displayed or used by the receiving institution." Campbell, et al., Col. 3, lns 41-52. Multiple types of servers may be used in image interchange. Minoli, 33; 250.
a database for storing the transaction data in a useful form;	"All images and data coming into or going out of the IPC 14 are controlled by the communication means 88, which performs all handshake protocol, logical addressing and communications packaging, and which directs all incoming images and data to the appropriate file means, as for example, image file means 100. The image file means 100 is processor controlled and broadly includes a primary storage

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	104 which represents, for example, a plurality of high-capacity magnetic discs and a back-up storage or archival file system, shown, for example, as a video disc 106." Owens, et al., Col. 12, lns 18-27. "The data associated with a transaction group of documents 18 is extracted from the data file means 114, and is put in the appropriate format by a conventional interface 124. From the interface 124, the data associated with the "on-us" documents 18 is presented in the desired format to the conventional application systems 126 where reports and application posting are performed." Owens, Col. 14, lns 12-18.
at least one central processing unit for managing the collecting of the transaction data;	"A system manager 108 at the IPC 14 (FIG. 1) provides common support functions such as operator consoles 110 (only one being shown), line printers (not shown), program libraries, and non-volatile storage and retrieval of system information needed by other subsystems. The system manager 108 also provides the operator interface to all subsystems of the banking system 10, and conventionally provides the control of initiation, termination and re-start processes." Owens, Col. 12, lns 27-36.
a domain name services program for dynamically assigning one of said at least one server to receive portions of the transaction data for balancing the transaction data among said at least one server; and	"The communications controllers 232, 234, and 236 (FIG. 5A) act as buffers in controlling the flow of the entry records 74 to the communications nodes 246, 248 which also include memory to store portions of an entry record 74." Owens, Col. 21, lns 1-17. "Bridges connect two or more LANs at the MAC layer. A bridge receiving packets (frames of information will pass the packets to the interconnected LAN based on some forwarding algorithm selected by the manufacturer (explicit route, dynamic address filtering, static address filtering, etc.) Minoli, p. 248-49.
a memory hierarchy.	"The image file means 100 is processor controlled and broadly includes a primary storage 104 which represents, for example, a plurality of high-capacity magnetic discs and a back-up storage or archival file system, shown, for example, as a video disc 106." Owens, Col. 12, lns 23-27.
20. A system as in claim 19 wherein said memory hierarchy comprises at least one primary memory for collecting transaction data and at least one secondary memory for backup storage of the transaction data.	Campbell et al. in view of Owens, et al. (4,264,808) and Minoli "The image file means 100 is processor controlled and broadly includes a primary storage 104 which represents, for example, a plurality of high-capacity magnetic discs and a back-up storage or archival file system, shown, for example, as a video disc 106." Owens, et al., Col. 12, lns 23-27. "The storage device 48 may be a rewritable mass storage device which can at least temporarily store or archive compressed or uncompressed check images prior to transmission to their destinations." Campbell, et al., Col. 6, lns 57-60. "In addition to temporary storage of check images, the storage mechanism 48 may be configured to provide long term archiving of check images." Campbell, et al., Col. 7, lns 6-8.
21. A system as in claim 20 wherein said at	Campbell et al. in view of Owens, et al. (4,264,808) and Minoli

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least one secondary memory comprises at least one DLT jukebox.	DLT = Digital Linear Tape, a type of magnetic tape storage device. "The data file means 114 is processor controlled and broadly includes a primary storage 116 which represents, for example, a plurality of high-capacity magnetic discs and magnetic tape units, and an optionally-provided back-up storage or archival file system, shown for example, as a video disc 118." Owens, et al., Col. 12, lns 23-27.
22. A system as in claim 18 wherein said at least one communication network comprises:	Campbell et al. in view of Minoli Minoli teaches that 3 LANs may be interconnected by a WAN. Minoli, p. 31; 269-270.
at least one first local area network for transmitting data within a corresponding one of said one or more remote data access subsystems;	Remote subsystem = bank of first deposit 36. "The imaging equipment may be large multiworkstation systems available from companies such as IBM, UNISYS, or NCR." Campbell, et al., Col. 3, ln. 10-12. "The images produced by the equipment 18 are directed to a network interface 20 which converts the signals from the equipment 18 into signals suitable for transmission on the telephone network 10." Campbell, et al., Col. 3, ln 17-20. "The output of the network interface 20 is connected to one or more network access lines 22 in FIG. 1. The network access lines 22 may comprise any form of transmission line suitable for carrying the expected volume of check image traffic between the sending institution 14 and the telephone network 10. For example, the network access lines 22 may comprise one or more digital transmission lines operating at speeds of about 2400 bits per second to about 1.544 megabits per second or more. Connection to the network 10 may be by an ordinary dial up line or by a dedicated private line." Campbell, et al., Col. 3, ln 20-31.
at least one second local area network for transmitting data within a corresponding one of said at least one data collection subsystem;	Intermediary bank 14 = data collecting subsystem "The imaging equipment may be large multiworkstation systems available from companies such as IBM, UNISYS, or NCR." Campbell, et al., Col. 3, ln. 10-12. "The images produced by the equipment 18 are directed to a network interface 20 which converts the signals from the equipment 18 into signals suitable for transmission on the telephone network 10." Campbell, et al., Col. 3, ln 17-20. "The output of the network interface 20 is connected to one or more network access lines 22 in FIG. 1. The network access lines 22 may comprise any form of transmission line suitable for carrying the expected volume of check image traffic between the sending institution 14 and the telephone network 10. For example, the network access lines 22 may comprise one or more digital transmission lines operating at speeds of about 2400 bits per second to about 1.544 megabits per second or more. Connection to the network 10 may be by an ordinary dial up line or by a dedicated private line." Campbell, et al., Col. 3, ln 20-31.
at least one third local area network for transmitting data within a corresponding one of said at least one data processing subsystem;	"A local area network 56 connects the subsystems of the node 12 described above." Campbell, et al., Col. 4, lns. 56-58. "The node controller and router 42 provides interfaces to systems external to the node 12. It is connected to all the other subsystems in the node 12 by way of the local area network 56.

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and	The controller 42 provides access to the database 46 and directs check images to appropriate subsystems in the node 12 connected to the local area network 56. The controller 42 also routes the check images from the node 12 to their ultimate destinations by way of the assembler/disassembler 40 and the frame relay network 38. The controller 42 may read some data accompanying check images, for example, it may identify that TCP/IP protocol information accompanying those images." Campbell, et al., Col. 5, lns. 14-26.
at least one wide area network for transmitting data between said one or more remote data access subsystems, said at least one data collection subsystem and said at least one data processing subsystem.	The public switched telephone network 10 may be a frame relay network, a WAN. Campbell, et al., Col. 2, ln 61.
23. A system as in claim 22 wherein said at least one communication network further comprises:	Campbell et al. in view of Minoli
at least one first modem for connecting said at least one first local area network of said one or more data access subsystems to a corresponding one of said at least one second local area network through said at least one wide area network;	Dial-up link between LAN routers. This approach involves the use of modems connected to the LAN server (bridge or router), to utilize the analog public telephone network. Circuit switching implies that the communications channel is not dedicated 24 h per day, but must be brought on line when needed (via a process called call setup) and then taken down when no longer needed. Minoli, p. 263.
at least one bank of modems for connecting said at least one second local area network of said at least one data collection subsystem to a corresponding some of said at least one first local area network of said one or more data access subsystems through said at least one wide area network;	Dial-up link between LAN routers. This approach involves the use of modems connected to the LAN server (bridge or router), to utilize the analog public telephone network. Circuit switching implies that the communications channel is not dedicated 24 h per day, but must be brought on line when needed (via a process called call setup) and then taken down when no longer needed. Minoli, p. 263.
at least one first wide area network router for connecting a corresponding one of said at least one second local area network of said at least one data collecting subsystem to said at least one wide area network; and	Minoli Fig. 9.7 (pg. 269) First router connecting two or more LANs over a WAN. The public switched telephone network 10 may be a frame relay network, a WAN. Campbell, et al., Col. 2, ln 61.
at least one second wide area network router	

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for connecting a corresponding one of said at least one third local area network of said at least one data processing subsystem to said at least one wide area network.	
24. A system as in claim 23 wherein said at least one first wide area network and said at least one second wide area network comprises a carrier cloud, said carrier cloud using a frame relay method for transmitting the transaction data.	Campbell et al. in view of Minoli "Frame relay service provides interconnection among n sites by requiring only that each site be connected to the "network cloud" via an access line. ... The cloud consists of switching nodes interconnected by trunks used to carry traffic aggregated from many users (see Fig. 9.7). In a public frame relay network the switches and the trunks are put in place by a carrier for use by many corporations. Carrier networks based on frame relay provide communications at up to 1.544 Mbps (in the United States), shared bandwidth on demand, and multiple user sessions over a single access line. The throughput is much higher than that available for packet switching, making the service attractive for imaging applications. In a private frame relay network, the switches and trunks are put in place (typically) by the corporate communications department of the company in question." Minoli, p. 268 The public switched telephone network 10 may be a frame relay network, a WAN. Campbell, et al., Col. 2, ln 61.
25. A system as in claim 22 wherein said at least one second local area network and said at least one third local area network further comprises a corresponding one of at least one network switch for routing transaction data within said at least one second local area network and said at least one third local area network.	Campbell et al. in view of Minoli "Frame relay service provides interconnection among n sites by requiring only that each site be connected to the "network cloud" via an access line. ... The cloud consists of switching nodes interconnected by trunks used to carry traffic aggregated from many users (see Fig. 9.7). In a public frame relay network the switches and the trunks are put in place by a carrier for use by many corporations. Carrier networks based on frame relay provide communications at up to 1.544 Mbps (in the United States), shared bandwidth on demand, and multiple user sessions over a single access line. The throughput is much higher than that available for packet switching, making the service attractive for imaging applications. In a private frame relay network, the switches and trunks are put in place (typically) by the corporate communications department of the company in question." Minoli, p. 268 The public switched telephone network 10 may be a frame relay network, a WAN. Campbell, et al., Col. 2, ln 61.
	Campbell et al.
26. A method for central management, storage and verification of remotely captured paper transactions from documents and receipts	Checks used to effectuate commercial and private transactions may be cleared through the banking system by transporting images of those checks between sending institutions and receiving institutions in forward and reverse flow paths between banks of first deposit and payor banks. The check images are

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comprising the steps of:	transported through a public switched telephone network which contains a special check imaging node which provides a network based check clearing service for customers of telephone network. The check imaging node receives images of checks from institutions which subscribe to this service and routes those images through the telephone network to intended subscriber and non-subscriber recipients. Campbell, et al., Abstract.
26a. capturing an image of the paper transaction data	"The sending institution 14 possesses check imaging equipment 18 which produces electrical or optical signals representing the image of a check. .... The imaging equipment may be large multiworkstation systems available from companies such as IBM, UNISYS, or NCR. Campbell, et al., Col. 2, ln. 64 – Col. 3, ln. 12.
at one or more remote locations and	Remote location = sending institution 14.
sending a captured image of the paper transaction data;	"The images produced by the equipment 18 are directed to a network interface 20 which converts the signals from the equipment 18 into signals suitable for transmission on the telephone network 10." Campbell, et al.,Col. 3, ln 17-20. "The output of the network interface 20 is connected to one or more network access lines 22 in FIG. 1. Campbell, et al., Col. 3, ln 20-31.
26b. managing the capturing and sending of the transaction data;	"The images produced by the equipment 18 are directed to a network interface 20 which converts the signals from the equipment 18 into signals suitable for transmission on the telephone network 10." Campbell, et al.,Col. 3, ln 17-20. "The imaging equipment may be large multiworkstation systems available from companies such as IBM, UNISYS, or NCR." Campbell, et al., Col. 3, ln. 10-12
26c. collecting, processing, sending and	The network 10 contains at least one check image processing node 12 which provides check clearance services. The node 12 receives images of checks from a sending institution 14 transmitted through the network 10. The node 12 processes the check images and sends them to a receiving institution 16." Campbell, et al., Col. 2, lns. 26-32.
storing the transaction data at a central location;	"[T]he processing node 12 receives check images and performs certain processing procedures on those images, including at least temporary storage of the received check images." Campbell, et al.,Col. 3, lns. 43-58. "The node 12 contains a frame relay assembler/disassembler 40 which receives frames of digital information representing check images sent by service subscribers to the network 38. The assembler/disassembler 40 also transmits frames of digital information representing check images to the network 38 after those images have been processed by the node 12. A node controller and router 42 controls the routing of check images to their intended destinations, both in the controller and to their ultimate destinations outside the network 38." Campbell, et al., Col. 3, ln 30 – 39. "The controller 42 may receive instructions from the work center 54 through the interface 52 to control changes made to the information in the database 46. These changes may include the addition or changes to personal identification numbers or bank related data." "The controller 42 may read some data

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	accompanying check images, for example, it may identify that TCP/IP protocol information accompanying those images. That information may instruct the node 12 about the identity of the sending institution and the intended receiving institution." Campbell, et al., Col. 5, ln 23-28.
26d. managing the collecting, processing, sending and storing of the transaction data;	"A node controller and router 42 controls the routing of check images to their intended destinations, both in the controller and to their ultimate destinations outside the network 38." Campbell, et al., Col. 3, ln 30 – 39. "The node controller and router 42 provides interfaces to systems external to the node 12. It is connected to all the other subsystems in the node 12 by way of the local area network 56. The controller 42 provides access to the database 46 and directs check images to appropriate subsystems in the node 12 connected to the local area network 56. The controller 42 also routes the check images from the node 12 to their ultimate destinations by way of the assembler/disassembler 40 and the frame relay network 38. The controller 42 may read some data accompanying check images, for example, it may identify that TCP/IP protocol information accompanying those images. That information may instruct the node 12 about the identity of the sending institution and the intended receiving institution. … The controller 42 may also be configured to handle information encrypted by sending institutions to provide security for the images transported by the network 38. The controller 42 may have its own encryption and decryption equipment to provide a secure environment in the node 12." Campbell, et al., Col 5, ln 14-60.
26e. encrypting subsystem identification information and the transaction data; and	"The controller 42 may also be configured to handle information encrypted by sending institutions to provide security for the images transported by the network 38. The controller 42 may have its own encryption and decryption equipment to provide a secure environment in the node 12." Campbell, et al., Col. 5, lns. 55-60. This implies that the sending bank 14 sends encrypted information. This information includes check images and also information "about the identity of the sending institution." Campbell, et al., Col. 5, ln 26-27. Thus, both the check images and the identifying information may be encrypted.
26f. transmitting the transaction data and the subsystem identification information	"The image of a check is created in a sending institution and sent to a receiving institution by means of the public switched telephone network." Campbell, et al., Col. 2, lns. 20-22. "The controller 42 may read some data accompanying check images, for example, it may identify that TCP/IP protocol information accompanying those images. That information may instruct the node 12 about the identity of the sending institution and the intended receiving institution." Campbell, et al., Col. 5, ln 23-28.
within and	Within the node 12: "A local area network 56 connects the subsystems of the node 12 described above." Campbell, et al. Col. 4, lns. 56-58. Within the sending bank 14: "The images produced by the equipment 18 are directed to a network

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	interface 10 which converts the signals from the equipment 18 into signals suitable for transmission on the telephone network 10." Campbell, et al., Col. 3, ln 17-20.
between the remote location(s) and the central location.	Between: "The public switched telephone network 10 may be a telephone network provided by a local exchange carrier … Campbell, et al., Col. 2, lns. 50-63. "The network access lines 22 may comprise any form of transmission line suitable for carrying the expected volume of check image traffic between the sending institution 14 and the telephone network 10." Campbell, et al., Col. 3, lns. 20-43.
27. The method as in claim 26 wherein said managing the capturing and sending step comprises the steps of:	Campbell et al.
successively transforming the captured transaction data to a bitmap image, a compressed bitmap image, an encrypted, compressed bitmap image and an encrypted, compressed bitmap image tagged with information identifying a location and time of the transaction data capturing; and	Campbell et al. in view of prior art admission "Since there are no universally adopted standards regarding imaging formats and compression standards, the node 12 contains a signal converter 50 which converts signals received by the node 12 in one format used by a sender into another format usable by a recipient. The converter 50 uses information stored in the database 46 regarding the formats and compression algorithms involved. This information will be relayed from the database 46 to the signal converter 50 by the node controller 42. The converter 50 may contain multi-vendor image format and compression processors which can uncompress and reconstruct images from one imaging system to another." Campbell, et al., Col. 7, lns. 15 – 27. Thus, the sending institution 14 may compress the images before transmitting to the node 12. Bitmap compression is one known compression standard. The node is designed to handle all compression formats. "The assembler/disassembler 40 [at the processing node 12] may read certain overhead information accompanying the images, including frame relay flags, identifiers, address bits, indicators, and other overhead information." Campbell, et al., Col. 5, ln 2-5.
storing the tagged, encrypted, compressed bitmap image.	"A storage device 48, which may be an electronic mailbox as shown in FIG. 2, stores at least temporarily some or all of check images received by the node 12. A signal converter 50 contains information used by the node 12 to convert images in a format used by the sending institutions into a format understandable by the receiving institution." Campbell, et al., Col. 4, lns. 45-52. "The storage device 48 may be a rewritable mass storage device which can at least temporarily store or archive comppressed or uncompressed check images prior to transmission to their destinations." Campbell, et al., Col. 6, lns 57-60.
28. The method as in claim 27 wherein said managing the capturing and sending step also captures electronic transactions from credit cards, smart cards and debit cards, signature	Campbell et al. in view of prior art admission Applicants' admission

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data or biometric data, further comprising the steps of:	
initiating an electronic transaction;	Applicants' admission
capturing signature data;	Applicants' admission
capturing biometric data; and	Applicants' admission
printing a paper transaction with data glyphs for the initiated electronic transaction.	Applicants' admission
29. A method as in claim 26 wherein:	Campbell et al.
said capturing and sending step occurs at a plurality of remote locations; and	"The network 10 contains at least one check image processing node 12 which provides check clearance services. The node 12 receives images of checks from a sending institution 14 transmitted through the network 10. The node 12 processes the check images and sends them to a receiving institution 16. The sending institution 14 is a subscriber to the telecommunications services provided by the node 12. The receiving institution 16 may or may not be a subscriber to the services of node 12. The sending institution 14 and the receiving institution 16 may be banks or other entities involved in a check clearing procedure." Campbell, et al., Col. 2, lns. 27-49.
said collecting, processing, sending and storing step occurs at a plurality of central locations.	"The network 10 contains at least one check image processing node 12 which provides check clearance services. The node 12 receives images of checks from a sending institution 14 transmitted through the network 10. The node 12 processes the check images and sends them to a receiving institution 16." Campbell, et al., Col. 27-49.
30. A method as in claim 29 wherein said collecting, processing, sending and storing step comprises the steps of:	Campbell et al. in view of Owens, et al. (4,264,808) and Minoli
polling the remote locations for transaction data with servers at the central locations;	"As the 'images' of the documents 18 included in a transaction group or batch are received in the form of entry records 74 (FIG. 3B) by the communication means 88, they are routed to the image file means 100 via a system bus 102 which may be any conventional high-speed bit serial bus." Owens, et al., Col. 12, lns 12-16. Minoli describes several servers suitable in imaging applications. Minoli, pg. 33; 250.
storing the transaction data at the central	At the central processing center, "[t]he image file means 100 is processor controlled and broadly

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location in a memory hierarchy, said storing maintains recently accessed transaction data in a primary memory and other transaction data in a secondary memory; and	includes a primary storage 104 which represents, for example, a plurality of high-capacity magnetic discs and a back-up storage or archival file system, shown, for example, as a video disc 106." Owens, et al., Col. 12, lns 23-27.
dynamically assigning the servers at the central location to receive portions of the transaction data for balancing the transaction data among the servers; and	"The communications controllers 232, 234, and 236 (FIG. 5A) act as buffers in controlling the flow of the entry records 74 to the communications nodes 246, 248 which also include memory to store portions of an entry record 74. Conventional direct link adapters 252 are used to couple the communication nodes 246, 248 to the system bus 102. When all the portions of an entry record 74 are received at one of the communication nodes 246, 248 all of these portions of an entry record are then routed to the image file means 100 (FIG. 1) under the control of an image file processor 254 (FIG. 5B) which is included in the image file means 100. When all the entry records 74 for a transaction group are received at the image file means 100, an end of documents 18 signal from the input hopper 24 shown in FIG. 3A indicates this fact to the system manager 108." Owens, Col. 21, lns 1-17. "Bridges connect two or more LANs at the MAC layer. A bridge receiving packets (frames of information will pass the packets to the interconnected LAN based on some forwarding algorithm selected by the manufacturer (explicit route, dynamic address filtering, static address filtering, etc.) Minoli, p. 248-49.
generating reports from the transaction data and providing data to software applications.	At the central processing center, "[t]he data associated with a transaction group of documents 18 is extracted from the data file means 114, and is put in the appropriate format by a conventional interface 124. From the interface 124, the data associated with the "on-us" documents 18 is presented in the desired format to the conventional application systems 126 where reports and application posting are performed." Owens, et al., Col. 14, lns 12-18.
31. A method as in claim 30 wherein said storing the transaction data step comprises the steps of:	Campbell et al. in view of Owens, et al. (4,264,808) and Minoli
partitioning the stored transaction data with predefined templates into panels; and	At the central processing center, "[t]he data associated with a transaction group of documents 18 is extracted from the data file means 114, and is put in the appropriate format by a conventional interface 124. Owens, et al., Col. 14, lns 12-18. MPR (machine pattern recognition) units connected to processors at the IPC (FIG. 5C) "include[] a conventional character recognition reader which reads the decompressed image of a document 18 and ascertains the monetary amount thereon." Owens, et al., Col. 23, lns 44-47.
identifying locations of the panels.	At the central processing center, "[t]he data associated with a transaction group of documents 18 is

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	extracted from the data file means 114, and is put in the appropriate format by a conventional interface 124. Owens, et al., Col. 14, lns 12-18. MPR (machine pattern recognition) units connected to processors at the IPC (FIG. 5C) "include[] a conventional character recognition reader which reads the decompressed image of a document 18 and ascertains the monetary amount thereon." Owens, et al., Col. 23, lns 44-47.
32. A method as in claim 31 wherein said managing the collecting, processing, sending and storing of the transaction data step comprises correcting errors in the panels of stored transaction data.	Campbell et al. in view of Owens, et al. (4,264,808) and Minoli "After completion at the MPR unit 140, all the developed data for a document 18 is analyzed for completeness. When data is missing, the associated image is routed to one of the processors 396, 398 for display on one of the CRTS 150 where an operator keys in the appropriate data on an associated keyboard 152. The image display controllers 410 and 412 have conventional decompression units associated therewith for the purpose of permitting operator viewing of the images from the file means 100. The operators complete the data completion function 148 (FIG. 10) by keying in the appropriate data such as monetary amounts (if necessary) while using the keyboards 152." Owens, et al., Col. 23, lns 47-52.
33. A method as in claim 32 further comprising the steps of:	Campbell et al. in view of Owens, et al. (4,264,808) and Minoli and prior art admission
polling the remote locations for captured electronic data, captured signature data and captured biometric data with servers at the central locations; and	Applicants' admission "IPC 230 in FIG. 9 may be configured to handle special entries such as those associated with the use of a credit card (as for example, VISA). In this situation the images or entry records 74 (FIG. 3) could be produced at any POA within the banking system 10 and transmitted to the IPC 230 for processing thereat as already explained." Owens, et al., Col. 20, lns 31-37.
comparing the captured signature data and the captured biometric data to stored signature data and stored biometric data respectively for identification verification.	"With regard to FIG. 8, the various reports (non-image application reports) shown as 214, various reporting data 216, the associated images 218 from the image file means 100, qualified transaction data 220 from the data file means 114 and the associated signatures 222 from a signature file means located at IPC 14 are used to create image reports 224 at the associated IPC 14." Owens, et al., Col. 19, lns 3-9.
34. A method as in claim 32 wherein said transmitting the transaction data step comprises the steps of:	Campbell et al. in view of Owens, et al. (4,264,808) and Minoli

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transmitting data within the remote locations;	Sending bank 14 includes check imaging equipment 18 and a network interface 20. Campbell, et al., FIG 1.
transmitting data from each remote location to a corresponding central location; and	The node 12 receives images of checks from a sending institution 14 transmitted through the network 10. The node 12 processes the check images and sends them to a receiving institution 16." Campbell, et al., Col. 2, lns. 26-32.
transmitting data within the central locations.	Receiving bank 16 includes check imaging processing equipment 32 and a network interface 30 on a LAN. Campbell, et al., FIG 1. "Check images are received in a network interface 30 in the receiving institution 16. The interface 30 transforms the signals from the network 10 into a form suitable for use by check image processing equipment 32 located in the receiving institution 16. The check image processing equipment 32 may be similar to the imaging equipment 18 located in the sending institution 14. The equipment 32 may also be facsimile equipment, character recognition equipment, e-mail systems, or any other image processing equipment by which the images received may be displayed or used by the receiving institution." Campbell, et al., Col. 3, ln 41-52.
35. A method as in claim 34 wherein said transmitting data from each remote location to a corresponding central location step comprises the steps of:	Campbell et al. in view of Owens, et al. (4,264,808) and Minoli
connecting each remote location to a corresponding central location; and	"The network access lines 22 may comprise any form of transmission line suitable for carrying the expected volume of check image traffic between the sending institution 14 and the telephone network 10." Campbell, et al., Col. 3, lns. 20-43.
connecting each central location to corresponding remote locations.	"The signals received by the network on line 22 may be transmitted through the network 10 via one or more trunks and one or more central offices to the check image processing node 12 as represented schematically by a dotted line 24. The check image processing node 12 then routes the received check image via one or more trunks and one or more central offices, as represented schematically by a dotted line 26, to a network access line 28 of suitable capacity which may be the same as or different from the network access line 22. Check images are received in a network interface 30 in the receiving institution 16. The interface 30 transforms the signals from the network 10 into a form suitable for use by check image processing equipment 32 located in the receiving institution 16. The check image processing equipment 32 may be similar to the imaging equipment 18 located in the sending institution 14. The equipment 32 may also be facsimile equipment, character recognition equipment, e-mail systems, or any other image processing equipment by which the images received may be displayed or used by the receiving institution." Campbell, et al., Col. 3, ln 32-52.

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36. A method as in claim 29 further comprising the steps of:	Campbell, et al.
collecting and sending the electronic or paper transaction data at intermediate locations;	A bank of first deposit 36 (remote location) may transmit images through an intermediary bank 14 (intermediate location), which forwards received images to the check processing node 12 (central location). Check images may be transmitted in a "forward flow path from a bank of first deposit [through the check processing node 12] to a payor bank." Campbell, et al., Col. 7, lns. 65-68. The bank of first deposit may have check processing equipment for generating images of the checks. Campbell, et al., Col. 4, lns 18-21; Col. 3, lns 46-48. Thus, the bank of first deposit 36 may be considered a remote data access subsystem that transmits images to the check processing node 12 (a central data access subsystem), for the forward presented of check images. Thus, this may be considered another teaching of claim 26. Furthermore, an intermediate bank 14 may be located in between the bank of first deposit 36 and the check processing node 12, "[o]ne or both institutions 14 and 16 may also be check clearance flows between a bank of first deposit and a payor bank." Campbell, et al., Col. 2, lns 46-49. Thus, the workflow is: (1) images are captured at the bank of first deposit 36; (2) the images are transmitted from the bank of first deposit 36 to an intermediate bank 14; the images are transmitted from the intermediate bank 14 to the check processing node 12.
managing the collecting and sending of the transaction data; and	Each bank, such as the intermediate bank 14 may have the equipment 18 and the associated hardware. Campbell, et al., Col. 3, lns. 46-48. "The images produced by the equipment 18 are directed to a network interface 20 which converts the signals from the equipment 18 into signals suitable for transmission on the telephone network 10." Campbell, et al., Col. 3, ln 17-20. "The output of the network interface 20 is connected to one or more network access lines 22 in FIG. 1." Campbell, et al., Col. 3, ln 20-31.
transmitting the transaction data within the intermediate location and between the intermediate locations and the remote locations and the central locations.	"A local area network 56 connects the subsystems of the node 12 described above." Campbell, et al., Col. 4, lns. 56-58. "The node 12 receives images of checks from a sending institution 14 transmitted through the network 10." Campbell, et al., Col. 2, lns 25-33. "The node controller and router 42 provides interfaces to systems external to the node 12. It is connected to all the other subsystems in the node 12 by way of the local area network 56. The controller 42 provides access to the database 46 and directs check images to appropriate subsystems in the node 12 connected to the local area network 56. Campbell, et al., Col. 5, lns. 14-26.
37. A method as in claim 36 wherein said managing the collecting and sending step comprises the steps of:	Campbell, et al. in view of Minoli "The system of FIG. 1 comprises a public switched telephone network 10. The network 10 contains at least one check image processing node 12 which provides check clearance services. The node 12 receives images of checks from a sending institution 14 transmitted through the network 10. The node 12 processes the check images and sends them to a receiving institution 16." Campbell, et al., Col. 2,

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	lns 25-33.
polling the remote locations for transaction data with servers in the intermediate locations;	"The node 12 contains a frame relay assembler/disassembler 40 which receives frames of digital information representing check images sent by service subscribers to the network 38. The assembler/disassembler 40 also transmits frames of digital information representing check images to the network 38 after those images have been processed by the node 12. A node controller and router 42 controls the routing of check images to their intended destinations, both in the controller and to their ultimate destinations outside the network 38." Campbell, et al., Col. 3, lns 30-39. "The controller 42 may read some data accompanying check images, for example, it may identify that TCP/IP protocol information accompanying those images. That information may instruct the node 12 about the identity of the sending institution and the intended receiving institution." Campbell, et al.; Col. 5, lns 23-28. Several severs are suitable for imaging applications. Minoli, p. 33; 250.
storing the transaction data in the intermediate locations in a useful form, said storing maintains the transaction data in a primary memory of a memory hierarchy and performs backup storage of the transaction data into a secondary memory of the memory hierarchy; and	"[T]he processing node 12 receives check images and performs certain processing procedures on those images, including at least temporary storage of the received check images." Campbell, et al., Col. 3, lns. 43-58.
dynamically assigning the servers to receive portions of the transaction data for balancing the transaction data among the servers.	"The node 12 contains a frame relay assembler/disassembler 40 which receives frames of digital information representing check images sent by service subscribers to the network 38. The assembler/disassembler 40 also transmits frames of digital information representing check images to the network 38 after those images have been processed by the node 12. A node controller and router 42 controls the routing of check images to their intended destinations, both in the controller and to their ultimate destinations outside the network 38." Campbell, et al., Col. 3, lns 30-39. "Bridges connect two or more LANs at the MAC layer. A bridge receiving packets (frames of information will pass the packets to the interconnected LAN based on some forwarding algorithm selected by the manufacturer (explicit route, dynamic address filtering, static address filtering, etc.) Minoli, p. 248-49.
38. The method as in claim 36 wherein said transmitting the transaction data step comprises the steps of:	Campbell, et al. Remote location = bank of first deposit 36; Intermediate location = bank 14; Central location = check processing node 12.

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	Campbell, et al., Col. 2, lns. 46-49; FIG. 2.
transmitting data within the remote locations;	The bank of first deposit may have check processing equipment for generating images of the checks. Campbell, et al., Col. 4, lns 18-21; Col. 3, lns 46-48.
transmitting data from each remote location to a corresponding intermediate location;	Intermediate bank 14 may be located in between the bank of first deposit 36 and the check processing node 12, "[o]ne or both institutions 14 and 16 may also be check clearance flows between a bank of first deposit and a payor bank." Campbell, et al., Col. 2, lns 46-49.
transmitting data within the intermediate locations;	Intermediate bank 14 includes check imaging equipment 18 and a network interface 20. Campbell, et al., FIG 1.
transmitting data from each intermediate location to corresponding central locations; and	The node 12 receives images of checks from [bank] 14 transmitted through the network 10." Campbell, et al., Col. 2, lns 25-33.
transmitting data within the central locations.	"A local area network 56 connects the subsystems of the node 12 described above." Campbell, et al., Col. 4, lns. 56-58.
39. A method as in claim 38 wherein said transmitting data from each remote location to corresponding intermediate locations step comprises the steps of:	Campbell, et al. Remote location = bank of first deposit 36; Intermediate location = bank 14; Central location = check processing node 12.
connecting each remote location to a corresponding intermediate location; and	Intermediate bank 14 may be located in between the bank of first deposit 36 and the check processing node 12, "[o]ne or both institutions 14 and 16 may also be check clearance flows between a bank of first deposit and a payor bank." Campbell, et al., Col. 2, lns 46-49. "The output of the network interface 20 is connected to one or more network access lines 22 in FIG. 1. The network access lines 22 may comprise any form of transmission line suitable for carrying the expected volume of check image traffic between the sending institution 14 and the telephone network 10. For example, the network access lines 22 may comprise one or more digital transmission lines operating at speeds of about 2400 bits per second to about 1.544 megabits per second or more. Connection to the network 10 may be by an ordinary dial up line or by a dedicated private line." Campbell, et al., Col. 3, ln 20-31.
connecting the intermediate locations to corresponding remote locations.	The node 12 receives images of checks from a sending institution 14 transmitted through the network 10." Campbell, et al., Col. 2, lns 25-33. "The node 12 contains a frame relay assembler/disassembler 40 which receives frames of digital information representing check images sent by service subscribers to the network 38." Campbell, et al., Col. 3, lns 30-39.

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40. A method as in claim 38 wherein said transmitting data from each intermediate location to corresponding central locations comprises the steps of:	Campbell, et al. Remote location = bank of first deposit 36; Intermediate location = bank 14; Central location = check processing node 12.
connecting each intermediate location to an external communication network; and	The node 12 receives images of checks from a sending institution 14 transmitted through the network 10." Campbell, et al., Col. 2, lns 25-33. "The output of the network interface 20 is connected to one or more network access lines 22 in FIG. 1. The network access lines 22 may comprise any form of transmission line suitable for carrying the expected volume of check image traffic between the sending institution 14 and the telephone network 10. For example, the network access lines 22 may comprise one or more digital transmission lines operating at speeds of about 2400 bits per second to about 1.544 megabits per second or more. Connection to the network 10 may be by an ordinary dial up line or by a dedicated private line." Campbell, et al., Col. 3, ln 20-31.
connecting the corresponding central locations to the communication network.	The node 12 receives images of checks from a sending institution 14 transmitted through the network 10." Campbell, et al., Col. 2, lns 25-33. "The node 12 accepts the images transmitted over the frame relay network 38... The node 12 contains frame relay assembler/disassembler 40 which receives frames of digital information representing check images sent by service subscribers to the network 38." Campbell, et al., Col. 4, lns. 26-33.
41. A method as in claim 40 wherein said transmitting data from each intermediate location to corresponding central locations step further comprises the steps of:	Campbell ,et al.
packaging the transaction data into frames; and	"The node 12 contains a frame relay assembler/disassembler 40 which receives frames of digital information representing check images sent by service subscribers to the network 38. The assembler/disassembler 40 also transmits frames of digital information representing check images to the network 38 after those images have been processed by the node 12. A node controller and router 42 controls the routing of check images to their intended destinations, both in the controller and to their ultimate destinations outside the network 38." Campbell, et al., Col. 3, lns 30-39.
transmitting the frames through the external communication network.	"The node 12 contains a frame relay assembler/disassembler 40 which receives frames of digital information representing check images sent by service subscribers to the network 38. The assembler/disassembler 40 also transmits frames of digital information representing check images to the network 38 after those images have been processed by the node 12. A node controller and router 42

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	controls the routing of check images to their intended destinations, both in the controller and to their ultimate destinations outside the network 38." Campbell, et al., Col. 3, lns 30-39.

Element by element comparison of claims 46-50 of the '988 Patent to Campbell, et al. (USP 5,373,550).

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46. A method for transmitting data within and between one or more remote subsystems, at least one intermediate subsystem and at least one central subsystem in a tiered manner wherein each of the central subsystems communicate with at least one intermediate subsystem and each of the intermediate subsystems communicate with at least one remote subsystems comprising the steps of:	"The system of FIG. 1 comprises a public switched telephone network 10. The network 10 contains at least one check image processing node 12 which provides check clearance services. The node 12 receives images of checks from a sending institution 14 transmitted through the network 10. The node 12 processes the check images and sends them to a receiving institution 16." Campbell, et al., Col. 2, ln 25-33.
46a. capturing an image of documents and receipts and extracting data therefrom;	The sending institution 14 possesses check impanging equipment 18 which produces electrical or optical signals representing the image of a check. Campbell, et al., Col. 2, lns 64-66. "The imaging equipment may be large multiworkstation systems available from companies such as IBM, UNISYS, or NCR." Campbell, et al., Col. 3, ln. 10-12. "The images produced by the equipment 18 are directed to a network interface 20 which converts the signals from the equipment 18 into signals suitable for transmission on the telephone network 10." Campbell, et al., Col. 3, ln 17-20. Extracting: "The destination identifying data may be manually entered by an operator at the time the image is generated in institution 14. The data may also be entered by character recognition equipment or the like in response to the image produced by the equipment 18. One alternative to the sending institution producing data relating to the destination of the check image is to install character recognition equipment in the check image processing node 12. The character recognition in the node 12 then can read the check image and determine its destination from certain characteristics of the image such as the endorsements on the check" Campbell, et al., Col. 3, ln 65 – Col. 4, ln 9.
46b. transmitting data within the remote locations;	"The imaging equipment may be large multiworkstation systems available from companies such as IBM, UNISYS, or NCR." Campbell, et al., Col. 3, ln. 10-12. "The images produced by the equipment 18 are directed to a network interface 20 which converts the signals from the equipment 18 into signals suitable for transmission on the telephone network 10." Campbell, et al., Col. 3, ln 17-20.
46c. transmitting data from each remote location to corresponding intermediate location;	"The network 10 contains at least one check image processing node 12 which provides check clearance services. The node 12 receives images of checks from a sending institution 14 transmitted through the network 10." Campbell, et al., Col. 2, lns. 26-32.
46d. transmitting data within the intermediate locations;	"A local area network 56 connects the subsystems of the node 12 described above." Campbell, et al., Col. 4, lns. 56-58. "The node controller and router 42 provides interfaces to systems external to the node 12. It is connected to all the other subsystems in the node 12 by way of the local area network 56. The controller 42 provides access to the database 46 and directs check images to appropriate subsystems in the node 12 connected to the local area network 56." Campbell, et al., Col. 5, lns. 14-26.

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46e. transmitting data from each intermediate location to corresponding central locations; and	"The network 10 contains at least one check image processing node 12 which provides check clearance services. The node 12 receives images of checks from a sending institution 14 transmitted through the network 10. The node 12 processes the check images and sends them to a receiving institution 16." Campbell, et al., Col. 2, lns. 26-32.
46f. transmitting data within the central locations.	"Check images are received in a network interface 30 in the receiving institution 16. The interface 30 transforms the signals from the network 10 into a form suitable for use by check image processing equipment 32 located in the receiving institution 16. The check image processing equipment 32 may be similar to the imaging equipment 18 located in the sending institution 14. The equipment 32 may also be facsimile equipment, character recognition equipment, e-mail systems, or any other image processing equipment by which the images received may be displayed or used by the receiving institution." Campbell, et al., Col. 3, ln 41-52.
47. A method as in claim 46 wherein said transmitting data from each remote location to corresponding intermediate locations step comprises the steps of:	See claim 46
47a. connecting each remote location to a corresponding intermediate location; and	"The images produced by the equipment 18 are directed to a network interface 20 which converts the signals from the equipment 18 into signals suitable for transmission on the telephone network 10. The output of the network interface 20 is connected to one or more network access lines 22 in FIG. 1. The network access lines 22 may comprise any form of transmission line suitable for carrying the expected volume of check image traffic between the sending institution 14 and the telephone network 10. For example, the network access lines 22 may comprise one or more digital transmission lines operating at speeds of about 2400 bits per second to about 1.544 megabits per second or more. Connection to the network 10 may be by an ordinary dial up line or by a dedicated private line." Campbell, et al., Col. 3; lns 17-31.
47b. connecting the intermediate locations to corresponding remote locations.	"The node 12 contains a frame relay assembler/disassembler 40 which receives frames of digital information representing check images sent by service subscribers to the network 38." Campbell, et al., Col. 4, ln 30-34.
48. A method as in claim 47 wherein said transmitting data from each intermediate location to corresponding central locations comprises the steps of:	See Claim 47
48a. connecting each intermediate location to an external communication network; and	"The images produced by the equipment 18 are directed to a network interface 20 which converts the signals from the equipment 18 into signals suitable for transmission on the telephone network 10. The output of the network interface 20 is connected to one or more network access lines 22 in FIG. 1. The network access lines 22 may comprise any form of transmission line suitable for carrying the

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	expected volume of check image traffic between the sending institution 14 and the telephone network 10. For example, the network access lines 22 may comprise one or more digital transmission lines operating at speeds of about 2400 bits per second to about 1.544 megabits per second or more. Connection to the network 10 may be by an ordinary dial up line or by a dedicated private line." Campbell, et al., Col. 3, lns 17- 31.
48b. connecting the corresponding central locations to the external communication network.	"The node 12 contains a frame relay assembler/disassembler 40 which receives frames of digital information representing check images sent by service subscribers to the network 38." Campbell, et al., Col. 4, ln 30-34.
49. A method as in claim 48 wherein said transmitting data from each intermediate location to, corresponding central locations step further comprises the steps of:	See Claim 48
49a. packaging the transaction data into frames; and	"An image of the front and back faces of the dishonored check is generated by the payor bank 34 and sent to a public switched telephone network in the form of a frame relay network 38. The frame relay network 38 may be the frame relay network in the AT&T switched network. The image of the dishonored check is sent through an appropriate path in the network 38 to the check image processing node 12." Campbell, et al., Col. 4, lns 18-25.
49b. transmitting the frames through the external communication network.	"The node 12 accepts the images transmitted over the frame relay network 38 and uses specific-subscriber data to process check images and retransmit those images through the network 38 to their final destination. The node 12 contains a frame relay assembler/disassembler 40 which receives frames of digital information representing check images sent by service subscribers to the network 38. The assembler/disassembler 40 also transmits frames of digital information representing check images to the network 38 after those images have been processed by the node 12." Campbell, et al., Col. 4, lns 18-36.
50. A method as in claim 46 wherein said data is obtained from (a) electronic transactions from credit cards, smart cards and debit cards, signature data or biometric data, or (b) paper transactions from documents and receipts.	"The network 10 contains at least one check image processing node 12 which provides check clearance services. The node 12 receives images of checks from a sending institution 14 transmitted through the network 10. The node 12 processes the check images and sends them to a receiving institution 16." Campbell, et al., Col. 2, lns. 26-32.

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Element by element comparison of claims 46-50 of the '988 Patent to Geer (USP 5,930,788).

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46. A method for transmitting data within and between one or more remote subsystems, at least one intermediate subsystem and at least one central subsystem in a tiered manner wherein each of the central subsystems communicate with at least one intermediate subsystem and each of the intermediate subsystems communicate with at least one remote subsystems comprising the steps of:	"The present invention comprises an integrated system beginning at a payee's item capture facility for effecting the efficient submission of checks and other financial instruments into the payment system for collection of funds. The financial instruments are received by a payee at a capture location remote from the payee's collecting and clearing depository bank and are presented for payment through the check payment system to the multiple institutions on which the instruments are drawn. In one embodiment, electronic scanning means at a first location established by the payee receives the financial instruments, scans and extracts necessary data therefrom including the data of the magnetic ink character recognition (MICR) line of the instrument, adds necessary data such as the amount and a document identification number to the electronic information associated with each check, and sends this electronic information to the payee's depository bank for further electronic sorting and processing both with regard to the introduction of the checks into the payment system and the crediting of funds represented by the checks to the payee's account at the bank, as the payee processes the check in its own record of account with the check payor. In this first embodiment, the paper financial instruments are typically imaged (electronically, digitally, optically, on microfilm or disk, or otherwise) for archival storage at the payee's location remote from the payee's depository bank, substantially contemporaneous with the capture of the financial or other information on the instrument." Col 4, lns 46-67. **remote subsystem** = payee 2 **intermediate subsystem** = depository bank 10 **central subsystem** = payment system 12
46a. capturing an image of documents and receipts and	"The financial instruments are received by a payee at a capture location **remote** from the payee's collecting and clearing depository bank." Col 4, lines 49-51. "[F]or retail establishments such as grocery chains and the like that receive large numbers of point of sale checks, the present invention is applicable with the item capture location of the payee being the point of sale check receiving establishment. Point of sale capture may, but need not necessarily, include imaging of the check." Col. 8, lns 48-54.
extracting data therefrom;	"An image of the physical check is **created**." "The image may be an optical or electronic gray-scale or color image of the check maintained in archival storage in pixel-by-pixel digital, optical, magnetic, electronic, fully optical or other storage technology from which information can be derived." Col 8, lns 12-19. "The electronic scanning for **extraction of the data** from the MICR line, etc., may be combined with the imaging of the check." Col 8, lns 61-64.
46b. transmitting data within the remote locations;	The internal communication **network** at the **remote capture location** is inherently disclosed. Referring to the FIGs., it is clear that electronic data is transmitted within the remote location among the functional components including the electronic sorter, the imaging unit, the archive, etc. "Following receipt and item capture by the payee, the check will advance to scanning and processing

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	in the electronic scanning block 6 of FIG. 1. In this step, the check is scanned by a suitable reader." Check images are created. "The data thus collected will typically include the MICR (Magnetic Ink Character Recognition) data from the MICR lines of the checks. The amount of the check and a date will also be collected (optionally verified by a human operator) and included with the electronic record to be associated with each check." [Col 7, lns 38-58] Ultimately, the check images and the information extracted from the check must be organized and transmitted to the bank of first deposit. Therefore, the electronic data is inherently transmitted within the remote location. "The embodiment of FIG. 1 uses electronic transmission of information related to electronically sorted information about checks received and electronic cash letters related to the particular groups of sorted checks. Therefore, sorting, reconciliation, etc., is effected by electronic means without the need for mechanical processing or delivery of physical paper checks." Col. 7, Lines 31-37. "The information flow within the check payee's organization from item capture 4 to the check payee accounting function 5 is a matter of payee preference." Col. 8, Lines 6-9
46c. transmitting data from each remote location to corresponding intermediate location;	"A communication link is established between the payee's location and the depository bank. Information pertaining to the checks and/or the cash letters in anticipation of a deposit in the payee's account corresponding to a cash letter (or cash letters) is transmitted from the payee to the collecting and clearing depository bank." [Col 5, lns 25-31]. "[T]his image of the check may also be transmitted electronically to the bank along with the other information extracted from the check." [Col 9, lns 1-10].
46d. transmitting data within the intermediate locations;	While the specification does not explicitly disclose the communication network internally at the bank of first deposit, it does disclose the flow of the electronic check information and check images through several functional blocks of the bank of first deposit.[1] Therefore, the electronic data is inherently transmitted within the bank of first deposit.
46e. transmitting data from each intermediate location to corresponding central locations; and	"The electronic check information … is sent via an appropriate communication link 15 into the payment system 12." [Col 9, lns 27-30]
46f. transmitting data within the central	"The payment system 12 includes clearing institutions such as the Federal Reserve Banks,

[1] "The electronic check information … is sent via an appropriate communication link 15 into the payment system 12." [Col 9, lns 27-30] "The image 7 is transferred via a communication link 11 from payee 2 to depository bank 10 for financial information processing and archival storage." [Col 10, lns 1-3] "At the depository bank, the appropriate adjustments of the payee's account balances by the depository bank are carried out 13." [Col 9, lns 11-25] "The payee's account is credited with the appropriate amounts as such are compiled by the payee and the information thereof is received electronically from the payee. The electronic check information is sorted and routed via 14, with appropriate electronic information added thereto to insure proper routing through the payment and clearing system to the appropriate payor bank." [Col 9, lns 14-16]

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locations.	correspondent banks, The National Clearinghouse Association (described in United States Letters Pat. No. 5,265,007), the electronic check clearing house organization (described in Stephens et al., supra), and like mechanisms. Having a direct relationship to the check payment system, the collecting and clearing depository bank 10 is considered a part of the check payment system." [Col 9, lns 30-37] "The payment system 12 receives checks from depository bank 10 and other banks of first and subsequent deposit (not depicted on FIG. 1) intended for various payor banks, B.sub.1, B.sub.2, B.sub.3 . . . B.sub.n, collectively denoted as 16 in FIG. 1. The check information from the payment system 12 reaches the appropriate payor banks 16 for proper debiting of the accounts of check writers 1 thus completing the payment cycle. In the event of dishonor of a check by a payor bank, the process reverses as to the collection of the dishonored check, and this **information may be transmitted electronically back through payment system 12** (or by more direct means of reversal) to depository bank 10 for unwinding the transaction and for debiting of the payee's account as to the dishonored check. " [Col 9, lns 38-51]
47. A method as in claim 46 wherein said transmitting data from each remote location to corresponding intermediate locations step comprises the steps of:	**See claim 46**
47a. connecting each remote location to a corresponding intermediate location; and	**"A communication link is established between the payee's location and the depository bank." Col. 5 ln 25-27.**
47b. connecting the intermediate locations to corresponding remote locations.	**"A communication link is established between the payee's location and the depository bank." Col. 5 ln 25-27.**
48. A method as in claim 47 wherein said transmitting data from each intermediate location to corresponding central locations comprises the steps of:	**See Claim 47**
48a. connecting each intermediate location to an external communication network; and	"The electronic check information as sorted, grouped and annotated by the depository bank [10] is sent via an appropriate communication link 15 into the payment system 12." [Col 9, lns 27-30]. Inherently, a connection between the depository bank 10 (the intermediate location) and the payment system 12, which includes a variety of independent "clearing institutions, such as the Federal Reserve Banks, correspondent banks, The National Clearinghouse Association . . . " (col. 9, ln. 25-34), requires first connecting the depository bank with an external network . . .
48b. connecting the corresponding central locations to the external communication	which, in turn, connects with the payment system 10.

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network.	
49. A method as in claim 48 wherein said transmitting data from each intermediate location to, corresponding central locations step further comprises the steps of:	See Claim 48.
49a. packaging the transaction data into frames; and	The transmission using frames is not expressly disclosed in the Geer patent. However, frame relay transmission was well-known at the time of the earliest Ballard patent filing and thus it would be a matter of obvious design choice to implement this specific method of transmitting data in the Geer system. See for example, the X.25 and X.31 protocols
49b. transmitting the frames through the external communication network.	See above.
50. A method as in claim 46 wherein said data is obtained from (a) electronic transactions from credit cards, smart cards and debit cards, signature data or biometric data, or (b) paper transactions from documents and receipts.	The data that is transmitted throughout the system is capture and extracted from check. See Claim 46(a) analysis above. Thus, the data of the claim elements, is obtained from paper transactions from documents and reciepts.

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	within the originating financial institution. ANSI, p. 202 (FIG. F.1). Items are transmitted from the "Receiving FII translator" to the "Image and Data Processing Application" within the receiving financial institution. ANSI, p. 203 (FIG. F.2).
between said one or more data access subsystems and said at least one data processing subsystem,	Examples of communication methods include "teleprocessing methods: links, network end point addresses, speed, data transfer protocols, etc." ANSI, p. 172; 199.
1d. with the data access subsystem providing encrypted subsystem identification information and encrypted paper transaction data to the data processing subsystem.	The ANSI describes encryption and various security methods. ANSI, p. 55-61. Encryption of specific data elements is taught, "[e]ncryption key name… conveys the name of the key used to encipher the contents of this functional group. The name is mutually known to the security originator and the security recipient, is unique for this relationship, and allows a particular key to be specified." ANSI, p. 57. Thus, data elements are encrypted (enciphered) at the functional group level. This is further supported by the initialization vector showing the length of the data element to be encrypted. ANSI, p. 55-618. As explained, one (1) type of functional group is known as "item views." The check images are item views. The "creation computer" which identifies the computer that creates the image is also an item view data element. ANSI, p. 93; 105. Thus, the originating institution (remote subsystem) provides encryption to both the images and the subsystem identification information.
2. A system as in claim 1 wherein said one or more data access subsystems further comprise at least one scanner for capturing the paper transaction data.	ANSI X9.46 standard "The institution participating in check image interchange shall capture both the full front and the full back of the item. ANSI, p. 9. The definition of "Image Capture" is found in the glossary of the standard on p. 220, "The operation of converting a human-readable image on paper to a digital representation stored in memory, or some other electronic, or optical, or electromagnetic, surfaced storage media. This is normally accomplished using some type of scanning device or camera."
3. A system as in claim 2 wherein said one or more data access subsystems also capture electronic transactions from credit cards, smart cards and debit cards, signature data or biometric data, further comprising:	ANSI in view of prior art admission
at least one card interface for capturing the electronic transaction data;	Applicants' admission
at least one signature interface for capturing an electronic signature; and	Applicants' admission

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at least one biometric interface for capturing biometric data.	Applicants' admission
4. A system as in claim 3 wherein said at least one data access controller successively transforms the captured transaction data to a bitmap image, a compressed bitmap image, an encrypted, compressed bitmap image and an encrypted, compressed bitmap image tagged with information identifying a location and time of the transaction data capture.	ANSI in view of prior art admission Items (images) may be compressed, encrypted and tagged with an image key for transmission. "Compression of views of items included in an interchange shall use one or more of the following algorithms." ANSI, p. 8; 93; 162. "Each pixel of uncompressed image shall be encoded as standard binary numbers." ANSI, p. 165. Encryption keys encipher the contents of the functional group. ANSI, p. 57. The function groups include "item views". ANSI, p. 13. An image key is another type of item view that may be transmitted. ANSI, p. 88. The "image key data element contains a unique value which is assigned to the image to provide a cross-reference between the financial data and the images and associated image data. This value is unique within the ECE institution." The image key contains a date, a sequence number, and a cycle number. ANSI, p. 90.
5. A system as in claim 4 wherein said one or more data access subsystems further comprise digital storage for storing the tagged, encrypted, compressed bitmap image.	ANSI in view of prior art admission The standard "defines a query protocol that may be used to request specific imaged items, or to request groups of imaged items being held in another institution's image storage facility." ANSI, p. 1. Several storage scenarios are detailed in the ANSI, both at paying and presenting banks. ANSI, p. 166-68. Storage may be by the imaging bank in the manner that it is captured or in the manner that images are ultimately transmitted. ANSI, p. 166.
6. A system as in claim 5 wherein said at least one card interface initiates the electronic transaction.	ANSI in view of prior art admission Applicants' admission
7. A system as in claim 6 wherein said one or more data access subsystems further comprise at least one printer for printing the paper transaction initiated by said at least one card interface.	ANSI in view of prior art admission Applicants' admission
8. A system as in claim 7 wherein the paper transaction printed by said at least one printer includes data glyphs.	ANSI in view of prior art admission Applicants' admission
9. A system as in claim 1 wherein said data management subsystem of said at least one data processing subsystem comprises:	ANSI in view of Owens, et al. (4,264,808) and Minoli

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at least one server for polling said one or more remote data access subsystems for transaction data;	"As the 'images' of the documents 18 included in a transaction group or batch are received in the form of entry records 74 (FIG. 3B) by the communication means 88, they are routed to the image file means 100 via a system bus 102 which may be any conventional high-speed bit serial bus." Owens, et al., Col. 12, lns 12-16. Minoli describes several servers suitable in imaging applications. Minoli, p. 33; 250.
a database subsystem for storing the transaction data in a useful form;	All images and data coming into or going out of the IPC 14 are controlled by the communication means 88, which performs all handshake protocol, logical addressing and communications packaging, and which directs all incoming images and data to the appropriate file means, as for example, image file means 100. The image file means 100 is processor controlled and broadly includes a primary storage 104 which represents, for example, a plurality of high-capacity magnetic discs and a back-up storage or archival file system, shown, for example, as a video disc 106. Owens, et al., Col. 12, lns 18-27.
a report generator for generating reports from the transaction data and providing data to software applications;	"The data associated with a transaction group of documents 18 is extracted from the data file means 114, and is put in the appropriate format by a conventional interface 124. From the interface 124, the data associated with the "on-us" documents 18 is presented in the desired format to the conventional application systems 126 where reports and application posting are performed." Owens, Col. 14, lns 12-18.
at least one central processing unit for managing the storing of the transaction data;	"A system manager 108 at the IPC 14 (FIG. 1) provides common support functions such as operator consoles 110 (only one being shown), line printers (not shown), program libraries, and non-volatile storage and retrieval of system information needed by other subsystems. The system manager 108 also provides the operator interface to all subsystems of the banking system 10, and conventionally provides the control of initiation, termination and re-start processes." Owens, Col. 12, lns 27-36.
a domain name services program for dynamically assigning one of said at least one server to receive portions of the transaction data for balancing the transaction data among said at least one server; and	"The communications controllers 232, 234, and 236 (FIG. 5A) act as buffers in controlling the flow of the entry records 74 to the communications nodes 246, 248 which also include memory to store portions of an entry record 74. Conventional direct link adapters 252 are used to couple the communication nodes 246, 248 to the system bus 102. When all the portions of an entry record 74 are received at one of the communication nodes 246, 248 all of these portions of an entry record are then routed to the image file means 100 (FIG. 1) under the control of an image file processor 254 (FIG. 5B) which is included in the image file means 100. When all the entry records 74 for a transaction group are received at the image file means 100, an end of documents 18 signal from the input hopper 24 shown in FIG. 3A indicates this fact to the system manager 108." Owens, Col. 21, lns 1-17. "Bridges connect two or more LANs at the MAC layer. A bridge receiving packets (frames of information will pass the packets to the interconnected LAN based on some forwarding algorithm selected by the manufacturer (explicit route, dynamic address filtering, static address filtering, etc.) Minoli, p. 248-49.
a memory hierarchy.	"The image file means 100 is processor controlled and broadly includes a primary storage 104 which

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	represents, for example, a plurality of high-capacity magnetic discs and a back-up storage or archival file system, shown, for example, as a video disc 106." Owens, Col. 12, lns 23-27.
10. A system as in claim 9 wherein said at least one server also polls for biometric and signature data, said database stores the biometric data and the signature data, and said at least one central processing unit verifies the biometric data and the signature data.	ANSI in view of Owens, et al. (4,264,808) and Minoli and prior art admission Applicants' admission "Signature cards or images 166 which are input into the system 10 via the ILU 22 in FIG. 2 are data completed as non-dollar batches by the data development means 112 and are used to derive account and control information therefrom; they are placed in the data file means 114 (FIG. 1)." Owens, et al., Col. 16, lns 20- 26. "With regard to FIG. 8, the various reports (non-image application reports) shown as 214, various reporting data 216, the associated images 218 from the image file means 100, qualified transaction data 220 from the data file means 114 and the associated signatures 222 from a signature file means located at IPC 14 are used to create image reports 224 at the associated IPC 14." Owens, et al., Col. 19, lns 3-9.
11. A system as in claim 9 wherein said memory hierarchy comprises at least one primary memory for storage of recently accessed transaction data and at least one secondary memory for storage of other transaction data.	ANSI in view of Owens, et al. (4,264,808) and Minoli "The image file means 100 is processor controlled and broadly includes a primary storage 104 which represents, for example, a plurality of high-capacity magnetic discs and a back-up storage or archival file system, shown, for example, as a video disc 106." Owens, et al., Col. 12, lns 23-27; Owens, et al., Col. 21, lns 17-38.
12. A system as in claim 11 wherein said at least one secondary memory comprises at least one write once read many jukebox and at least one optical storage jukebox.	ANSI in view of Owens, et al. (4,264,808) and Minoli Minoli displays each of an optical jukebox (p. 30), a WORM jukebox (p. 31), and a video jukebox (p. 28). Owens, et al. describes its back-up storage as a video disc, video recorder or magnetic disc. Col. 21, lns 35-39; Col. 22, lns 33-35.
13. A system as in claim 12 wherein said at least one optical storage jukebox comprises read only memory technology including compact disc read only memory form factor metallic write once read many disc.	ANSI in view of Owens, et al. (4,264,808) and Minoli CD-ROM optical storage is described as being faster (150 kbps) than video servers. Minoli, p. 33.
14. A system as in claim 9 wherein said database subsystem comprises at least one predefined template for partitioning the stored	ANSI in view of Owens, et al. (U.S. Patent No. 4,264,808) and Minoli MPR (machine pattern recognition) units connected to processors at the IPC (FIG. 5C) "include[] a

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transaction data into panels and identifying locations of the panels.	conventional character recognition reader which reads the decompressed image of a document 18 and ascertains the monetary amount thereon." Owens, et al., Col. 23, lns 44-47.
15. A system as in claim 14 wherein said data processing subsystem further comprises a data entry gateway for correcting errors in the panels of stored transaction data.	ANSI in view of Owens, et al. (U.S. Patent No. 4,264,808) and Minoli "After completion at the MPR unit 140, all the developed data for a document 18 is analyzed for completeness. When data is missing, the associated image is routed to one of the processors 396, 398 for display on one of the CRTS 150 where an operator keys in the appropriate data on an associated keyboard 152. The image display controllers 410 and 412 have conventional decompression units associated therewith for the purpose of permitting operator viewing of the images from the file means 100. The operators complete the data completion function 148 (FIG. 10) by keying in the appropriate data such as monetary amounts (if necessary) while using the keyboards 152." Owens, et al., Col. 23, lns 47-52.
16. A system as in claim 1 wherein said at least one communication network comprises:	ANSI in view of Minoli
at least one first local area network for transmitting data within a corresponding one of said one or more remote data access subsystems;	Scan Segment on a LAN (Minoli, p. 31). ANSI, p. 196; 202-203 illustrate that a financial institution may have multiple subsystems, such as a FII system user and a FII translator. Such subsystems may be connected by a LAN.
at least one second local area network for transmitting data within a corresponding one of said at least one data processing subsystem; and	Access Segment on a LAN (Minoli, p. 31). ANSI, p. 196; 202-203 illustrate that a financial institution may have multiple subsystems, such as a FII system user and a FII translator. Such subsystems may be connected by a LAN.
at least one wide area network for transmitting data between said one or more remote data access subsystems and said at least one data processing subsystem.	WAN connectivity for associated imaging and processing LANs through a Public PVC or SVC frame relay network. (Minoli, Pages 269-270). Examples of communication methods include "teleprocessing methods: links, network end point addresses, speed, data transfer protocols, etc." ANSI, p. 173; 199. These are examples of WANs.
17. A system as in claim 16 wherein said at least one communication network further comprises:	ANSI in view of Minoli

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at least one modem for connecting said at least one first local area network of said one or more data access subsystems to a corresponding one of said at least one second local area network of said at least one data processing subsystem through said at least one wide area network; and	Dial-up link between LAN routers. This approach involves the use of modems connected to the LAN server (bridge or router), to utilize the analog public telephone network. Circuit switching implies that the communications channel is not dedicated 24 h per day, but must be brought on line when needed (via a process called call setup) and then taken down when no longer needed. Minoli, p. 263.
at least one bank of modems for connecting said at least one second local area network of said at least one data processing subsystem to a corresponding some of said at least one first local area network of said one or more data access subsystems through said at least one wide area network.	Dial-up link between LAN routers. This approach involves the use of modems connected to the LAN server (bridge or router), to utilize the analog public telephone network. Circuit switching implies that the communications channel is not dedicated 24 h per day, but must be brought on line when needed (via a process called call setup) and then taken down when no longer needed. Minoli, p. 263.
18. A system as in claim 1 further comprising at least one data collecting subsystem for collecting and sending the electronic or paper transaction data comprising a further management subsystem for managing the collecting and sending of the transaction data.	ANSI "[T]he communications of an interchange is an end-to-end service which may involve the use of intermediate relay points. Intermediate FII-translators forward received transaction sets destined to other users by embedding them in a newly constructed interchange." ANSI, p. 199. Financial institutions and intermediaries may interchange images. ANSI, p. 2.
19. A system as in claim 18 wherein said further data management subsystem of said at least one data collecting subsystem comprises:	ANSI in view of Campbell, et al. (5,373,550) and Minoli Image processing node = data collecting subsystem "The system of FIG. 1 comprises a public switched telephone network 10. The network 10 contains at least one check image processing node 12 which provides check clearance services. The node 12 receives images of checks from a sending institution 14 transmitted through the network 10. The node 12 processes the check images and sends them to a receiving institution 16." Campbell, et al., Col. 2, lns 25-33.
at least one server for polling said one or more remote data access subsystems for transaction data;	"The node 12 contains a frame relay assembler/disassembler 40 which receives frames of digital information representing check images sent by service subscribers to the network 38. The assembler/disassembler 40 also transmits frames of digital information representing check images to the network 38 after those images have been processed by the node 12. A node controller and router 42 controls the routing of check images to their intended destinations, both in the controller and to their ultimate destinations outside the network 38." Campbell, et al., Col. 3, lns 30 - 39. "The controller 42 may read some data accompanying check images, for example, it may identify that TCP/IP protocol information accompanying those images. That information may instruct the node 12 about the identity of the sending institution and the intended receiving institution."

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	Campbell, et al., Col. 5, lns 23-28. Multiple types of servers may be used in image interchange. Minoli, 33; 250.
a database for storing the transaction data in a useful form;	"The database 46 contains two types of data, data relating to subscribers to the services of node 12 and data relating to banks and other potential destinations which do not subscribe to the services of the node 12." Campbell, et al., Col. 6, lns 9-12. "A subscriber's check images will be stored in the storage device 48 if the subscriber elects this option." Campbell, et al., Col. 6, lns 63-64.
at least one central processing unit for managing the collecting of the transaction data;	"[T]he processing node 12 receives check images and performs certain processing procedures on those images, including at least temporary storage of the received check images." Campbell, et al., Col. 3, lns. 43-58.
a domain name services program for dynamically assigning one of said at least one server to receive portions of the transaction data for balancing the transaction data among said at least one server; and	"The node 12 contains a frame relay assembler/disassembler 40 which receives frames of digital information representing check images sent by service subscribers to the network 38. The assembler/disassembler 40 also transmits frames of digital information representing check images to the network 38 after those images have been processed by the node 12. A node controller and router 42 controls the routing of check images to their intended destinations, both in the controller and to their ultimate destinations outside the network 38." Campbell, et al., Col. 3, lns 30 - 39. "Bridges connect two or more LANs at the MAC layer. A bridge receiving packets (frames of information will pass the packets to the interconnected LAN based on some forwarding algorithm selected by the manufacturer (explicit route, dynamic address filtering, static address filtering, etc.) Minoli, p. 248-49.
a memory hierarchy.	"The storage device 48 may be a rewritable mass storage device which can at least temporarily store or archive compressed or uncompressed check images prior to transmission to their destinations." Campbell, et al., Col. 6, lns 57-60. "In addition to temporary storage of check images, the storage mechanism 48 may be configured to provide long term archiving of check images." Campbell, et al., Col. 7, lns 6-8.
20. A system as in claim 19 wherein said memory hierarchy comprises at least one primary memory for collecting transaction data and at least one secondary memory for backup storage of the transaction data.	ANSI in view of Campbell, et al. (5,373,550) and Minoli "The storage device 48 may be a rewritable mass storage device which can at least temporarily store or archive compressed or uncompressed check images prior to transmission to their destinations." Campbell, et al., Col. 6, lns 57-60. "In addition to temporary storage of check images, the storage mechanism 48 may be configured to provide long term archiving of check images." Campbell, et al., Col. 7, lns 6-8.
21. A system as in claim 20 wherein said at least one secondary memory comprises at least one DLT jukebox.	ANSI in view of Campbell, et al. (5,373,550) and Minoli DLT = Digital Linear Tape, a type of magnetic tape storage device. Minoli describes several image storage systems including: CD-ROMs, WORMs, recordable CD, and

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	magnetooptic (MO) storage. Minoli, p. 219.
22. A system as in claim 18 wherein said at least one communication network comprises:	ANSI in view of Minoli
at least one first local area network for transmitting data within a corresponding one of said one or more remote data access subsystems;	Scan Segment on a LAN (Minoli, p. 31; 269-270) ANSI, p. 196; 202-203 illustrate that a financial institution may have multiple subsystems, such as a FII system user and a FII translator. Such subsystems may be connected by a LAN.
at least one second local area network for transmitting data within a corresponding one of said at least one data collection subsystem;	Utilities Segment on a LAN (Minoli, p. 31; 269-270) "[T]he communications of an interchange is an end-to-end service which may involve the use of intermediate relay points. Intermediate FII-translators forward received transaction sets destined to other users by embedding them in a newly constructed interchange." ANSI, p. 199. Financial institutions and intermediaries may interchange images. ANSI, p. 2.
at least one third local area network for transmitting data within a corresponding one of said at least one data processing subsystem; and	Access Segment on a LAN (Minoli, p. 31; 269-270). ANSI, p. 196; 202-203 illustrate that a financial institution may have multiple subsystems, such as a FII system user and a FII translator. Such subsystems may be connected by a LAN.
at least one wide area network for transmitting data between said one or more remote data access subsystems, said at least one data collection subsystem and said at least one data processing subsystem.	WAN connectivity for associated imaging and processing LANs through a Public PVC or SVC frame relay network. (Minoli, Pages 269-270). Examples of communication methods include "teleprocessing methods; links, network end point addresses, speed, data transfer protocols, etc." ANSI, p. 172; 199. These are examples of WANs.
23. A system as in claim 22 wherein said at least one communication network further comprises:	ANSI in view of Minoli
at least one first modem for connecting said at least one first local area network of said one or more data access subsystems to a corresponding one of said at least one second local area network through said at least one	Dial-up link between LAN routers. This approach involves the use of modems connected to the LAN server (bridge or router), to utilize the analog public telephone network. Circuit switching implies that the communications channel is not dedicated 24 h per day, but must be brought on line when needed (via a process called call setup) and then taken down when no longer needed. Minoli, p. 263.

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wide area network;	
at least one bank of modems for connecting said at least one second local area network of said at least one data collection subsystem to a corresponding some of said at least one first local area network of said one or more data access subsystems through said at least one wide area network;	Dial-up link between LAN routers. This approach involves the use of modems connected to the LAN server (bridge or router), to utilize the analog public telephone network. Circuit switching implies that the communications channel is not dedicated 24 h per day, but must be brought on line when needed (via a process called call setup) and then taken down when no longer needed. Minoli, p. 263.
at least one first wide area network router for connecting a corresponding one of said at least one second local area network of said at least one data collecting subsystem to said at least one wide area network; and	Minoli Fig. 9.7 (p. 269) First router connecting two or more LANs over a WAN. Examples of communication methods include "teleprocessing methods: links, network end point addresses, speed, data transfer protocols, etc." ANSI, p. 172; 199.
at least one second wide area network router for connecting a corresponding one of said at least one third local area network of said at least one data processing subsystem to said at least one wide area network.	Minoli Fig. 9.7 (p. 269) Second router connecting two or more LANs over a WAN. Examples of communication methods include "teleprocessing methods: links, network end point addresses, speed, data transfer protocols, etc." ANSI, p. 172; 199.
24. A system as in claim 23 wherein said at least one first wide area network and said at least one second wide area network comprises a carrier cloud, said carrier cloud using a frame relay method for transmitting the transaction data.	ANSI in view of Minoli "Frame relay service provides interconnection among n sites by requiring only that each site be connected to the 'network cloud' via an access line. ... The cloud consists of switching nodes interconnected by trunks used to carry traffic aggregated from many users (see Fig. 9.7). In a public frame relay network the switches and the trunks are put in place by a carrier for use by many corporations. ... In a private frame relay network, the switches and trunks are put in place (typically) by the corporate communications department of the company in question." Minoli, p. 268. Examples of communication methods include "teleprocessing methods: links, network end point addresses, speed, data transfer protocols, etc." ANSI, p. 172; 202.
25. A system as in claim 22 wherein said at least one second local area network and said at least one third local area network further comprises a corresponding one of at least one network switch for routing transaction data within said at least one second local area network and said at least one third local area	ANSI in view of Minoli "Frame relay service provides interconnection among n sites by requiring only that each site be connected to the 'network cloud' via an access line. ... The cloud consists of switching nodes interconnected by trunks used to carry traffic aggregated from many users (see Fig. 9.7). In a public frame relay network the switches and the trunks are put in place by a carrier for use by many corporations. ... In a private frame relay network, the switches and trunks are put in place (typically) by the corporate communications department of the

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network.	company in question." Minoli, p. 268. Examples of communication methods include "teleprocessing methods: links, network end point addresses, speed, data transfer protocols, etc." ANSI, p. 172; 199.
26. A method for central management, storage and verification of remotely captured paper transactions from documents and receipts comprising the steps of:	The ANSI X9.46 standard is an electronic data interchange protocol for the exchange of electronic digitized images of financial documents among different financial institutions involved in a payment transaction. ANSI, p. 1. The exchange occurs across diverse computing platforms. Packaged interchange content may be delivered from the originating imaging application's financial image interchange translator to the receiving imaging application's financial image interchange translator is through a computer network by transmitting the data electronically. ANSI, p. 15-16. "This standard is intended to improve the payments system by supporting the interchange of digitized images of financial documents, specifically check and similar paper-based instruments; facilitate the truncation of the paper at the earliest possible point in the clearing process; and support transmissions from a single transaction to many transaction serving banking payment processing applications." ANSI, p. 1.
26a. capturing an image of the paper transaction data	"The institution participating in check image interchange shall capture both the full front and the full back of the item. ANSI, p. 9.
at one or more remote locations and	The ANSI X9.46 standard is an electronic data interchange protocol for the exchange of electronic digitized images of financial documents among different financial institutions involved in a payment transaction. ANSI, p. 1.
sending a captured image of the paper transaction data;	Transaction sets are interchanged. Transaction set contents are different for each functional group that can be interchanged. ANSI, p. 16. The function groups include "item views". ANSI, p. 14. "Item Views" include "bundles of views of imaged items, item information for each view and item view data." ANSI, p. 16. "For each item, e.g., check, this standard defines mechanisms for sending and receiving both information about the item (item information) and digitized representations of the item." ANSI, p. 9.
26b. managing the capturing and sending of the transaction data;	"The data to be interchange from the originating imaging application are packaged by the FII-translator." ANSI, p. 10. "The translator (FII-translator) function of the originating application produces an interchange object (i.e., a complex data structure) by translating the output of the local imaging handling, data processing, or data storage application into a standardized interchangeable 'edi' structure." ANSI, p. 12; 150-151.
26c. collecting, processing, sending and	"The data to be interchanged from the originating imaging application are packaged by the FII-translator, and sent to the receiving imaging application." ANSI, p. 12. "[U]pon receipt of the interchanged data, the FII-translator will parse the incoming data for the receiving imaging application. Then, the receiving imaging application may generate acknowledgements or replies to query requests, and become the originating imaging application for a new image interchange." ANSI, p. 12.
storing the transaction data	On p. 14, lines 465-466, of the standard states that the "edi" translator function of the receiving application

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	translates the "edi" interchange into the locally understood data structures for subsequent storage or processing of the data by the receiver's application."
at a central location;	The ANSI X9.46 standard is an electronic data interchange protocol for the exchange of electronic digitized images of financial documents among different financial institutions involved in a payment transaction. ANSI, p. 1.
26d. managing the collecting, processing, sending and storing of the transaction data;	"[U]pon receipt of the interchanged data, the FII-translator will parse the incoming data for the receiving imaging application. Then, the receiving imaging application may generate acknowledgements or replies to query requests, and become the originating imaging application for a new image interchange." ANSI, p. 12.
26e. encrypting subsystem identification information and	The ANSI describes encryption and various security methods. ANSI, p. 55-61. Encryption of specific data elements is taught, "[e]ncryption key name... conveys the name of the key used to encipher the contents of this functional group. The name is mutually known to the security originator and the security recipient, is unique for this relationship, and allows a particular key to be specified." ANSI, p. 56. Thus, data elements are encrypted (enciphered) at the functional group level. This is further supported by the initialization vector showing the length of the data element to be encrypted. ANSI, p. 55; 57. As explained, one (1) type of functional group is known as "item views." The check images are item views. The "creation computer" which identifies the computer that creates the image is also an item view data element. ANSI, p. 93-94; 105 Thus, the originating institution (remote subsystem) provides encryption to both the images and the subsystem identification information.
the transaction data; and	Transaction sets are interchanged. Transaction set contents are different for each functional group that can be interchanged. ANSI, p. 14. The function groups include "item views". ANSI, p. 14. "Item Views" include "bundles of views of imaged items, item information for each view and item view data." ANSI, p. 14. "For each item, e.g., check, this standard defines mechanisms for sending and receiving both information about the item (item information) and digitized representations of the item." ANSI, p. 9.
26f. transmitting the transaction data and the subsystem identification information	"[P]ackaged interchange content is delivered from the originating imaging application's financial image interchange translator to the receiving imaging application's financial image interchange translator is through a computer network by transmitting the packaged interchange data electronically." ANSI, p. 15; 199.
within and	Items are transmitted from the "Image and Data Processing Application" to the "Originating FII translator" within the originating financial institution. ANSI, p. 202 (FIG. F.1). Items are transmitted from the "Receiving FII translator" to the "Image and Data Processing Application" within the receiving financial institution. ANSI, p. 203 (FIG. F.2).
between the remote location(s) and the central	"[P]ackaged interchange content is delivered from the originating imaging application's financial image

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location.	interchange translator to the receiving imaging application's financial image interchange translator is through a computer network by transmitting the packaged interchange data electronically." ANSI, p. 15; 199.
27. The method as in claim 26 wherein said managing the capturing and sending step comprises the steps of:	ANSI
successively transforming the captured transaction data to a bitmap image, a compressed bitmap image, an encrypted, compressed bitmap image and an encrypted, compressed bitmap image tagged with information identifying a location and time of the transaction data capturing; and	Items (images) may be compressed, encrypted and tagged with an image key for transmission. "Compression of views of items included in an interchange shall use one or more of the following algorithms." ANSI, p. 9; 88; 162-163. "Each pixel of uncompressed image shall be encoded as standard binary numbers." ANSI, p. 160. Encryption keys encipher the contents of the functional group. ANSI, p. 57. The function groups include "item views". ANSI, p. 14. An image key is another type of item view that may be transmitted. ANSI, p. 88. The "image key data element contains a unique value which is assigned to the image to provide a cross-reference between the financial data and the images and associated image data. This value is unique within the ECE institution." The image key contains a date, a sequence number, and a cycle number. ANSI, p. 90.
storing the tagged, encrypted, compressed bitmap image.	The standard "defines a query protocol that may be used to request specific imaged items, or to request groups of imaged items being held in another institution's image storage facility." ANSI, p. 1. Several storage scenarios are detailed in the ANSI, both at paying and presenting banks. ANSI, p. 173. Storage may be by the imaging bank in the manner that it is captured or in the manner that images are ultimately transmitted. ANSI, p. 173.
28. The method as in claim 27 wherein said managing the capturing and sending step also captures electronic transactions from credit cards, smart cards and debit cards, signature data or biometric data, further comprising the steps of:	ANSI in view of prior art admission Applicants' admission
initiating an electronic transaction;	Applicants' admission
capturing signature data;	Applicants' admission
capturing biometric data; and	Applicants' admission
printing a paper transaction with data glyphs for the initiated electronic transaction.	Applicants' admission

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29. A method as in claim 26 wherein:	ANSI
said capturing and sending step occurs at a plurality of remote locations; and	The ANSI X9.46 standard is an electronic data interchange protocol for the exchange of electronic digitized images of financial documents among different financial institutions involved in a payment transaction. ANSI, p. 1. "Image interchange will occur among a wide variety of financial institutions" ANSI, p. 2.
said collecting, processing, sending and storing step occurs at a plurality of central locations.	The ANSI X9.46 standard is an electronic data interchange protocol for the exchange of electronic digitized images of financial documents among different financial institutions involved in a payment transaction. ANSI, p. 1. "Image interchange will occur among a wide variety of financial institutions" ANSI, p. 2.
30. A method as in claim 29 wherein said collecting, processing, sending and storing step comprises the steps of:	ANSI in view of Owens, et al. (4,264,808) and Minoli
polling the remote locations for transaction data with servers at the central locations;	"As the 'images' of the documents 18 included in a transaction group or batch are received in the form of entry records 74 (FIG. 3B) by the communication means 88, they are routed to the image file means 100 via a system bus 102 which may be any conventional high-speed bit serial bus." Owens, et al., Col. 12, lns 12-16. Minoli describes several servers suitable in imaging applications. Minoli, p. 33; 250.
storing the transaction data at the central location in a memory hierarchy, said storing maintains recently accessed transaction data in a primary memory and other transaction data in a secondary memory; and	At the central processing center, "[t]he image file means 100 is processor controlled and broadly includes a primary storage 104 which represents, for example, a plurality of high-capacity magnetic discs and a back-up storage or archival file system, shown, for example, as a video disc 106." Owens, et al., Col. 12, lns 23-27.
dynamically assigning the servers at the central location to receive portions of the transaction data for balancing the transaction data among the servers; and	"The communications controllers 232, 234, and 236 (FIG. 5A) act as buffers in controlling the flow of the entry records 74 to the communications nodes 246, 248 which also include memory to store portions of an entry record 74. Conventional direct link adapters 252 are used to couple the communication nodes 246, 248 to the system bus 102. When all the portions of an entry record 74 are received at one of the communication nodes 246, 248 all of these portions of an entry record are then routed to the image file means 100 (FIG. 1) under the control of an image file processor 254 (FIG. 5B) which is included in the image file means 100. When all the entry records 74 for a transaction group are received at the image file means 100, an end of documents 18 signal from the input hopper 24 shown in FIG. 3A indicates this fact to the system manager 108." Owens, Col. 21, lns 1-17. "Bridges connect two or more LANs at the MAC layer. A bridge receiving packets (frames of information will pass the packets to the interconnected LAN based on some forwarding algorithm selected by the manufacturer (explicit route, dynamic address filtering, static address filtering, etc.) Minoli, p. 248-49.

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generating reports from the transaction data and providing data to software applications.	At the central processing center, "[t]he data associated with a transaction group of documents 18 is extracted from the data file means 114, and is put in the appropriate format by a conventional interface 124. From the interface 124, the data associated with the "on-us" documents 18 is presented in the desired format to the conventional application systems 126 where reports and application posting are performed." Owens, et al., Col. 14, lns 12-18.
31. A method as in claim 30 wherein said storing the transaction data step comprises the steps of:	ANSI in view of Owens, et al. (4,264,808) and Minoli
partitioning the stored transaction data with predefined templates into panels; and	At the central processing center, "[t]he data associated with a transaction group of documents 18 is extracted from the data file means 114, and is put in the appropriate format by a conventional interface 124. Owens, et al., Col. 14, lns 12-18. MPR (machine pattern recognition) units connected to processors at the IPC (FIG. 5C) "include[] a conventional character recognition reader which reads the decompressed image of a document 18 and ascertains the monetary amount thereon." Owens, et al., Col. 23, lns 44-47.
identifying locations of the panels.	At the central processing center, "[t]he data associated with a transaction group of documents 18 is extracted from the data file means 114, and is put in the appropriate format by a conventional interface 124. Owens, et al., Col. 14, lns 12-18. MPR (machine pattern recognition) units connected to processors at the IPC (FIG. 5C) "include[] a conventional character recognition reader which reads the decompressed image of a document 18 and ascertains the monetary amount thereon." Owens, et al., Col. 23, lns 44-47.
32. A method as in claim 31 wherein said managing the collecting, processing, sending and storing of the transaction data step comprises correcting errors in the panels of stored transaction data.	ANSI in view of Owens, et al. (4,264,808) and Minoli "After completion at the MPR unit 140, all the developed data for a document 18 is analyzed for completeness. When data is missing, the associated image is routed to one of the processors 396, 398 for display on one of the CRTS 150 where an operator keys in the appropriate data on an associated keyboard 152. The image display controllers 410 and 412 have conventional decompression units associated therewith for the purpose of permitting operator viewing of the images from the file means 100. The operators complete the data completion function 148 (FIG. 10) by keying in the appropriate data such as monetary amounts (if necessary) while using the keyboards 152." Owens, et al., Col. 23, lns 47-52.
33. A method as in claim 32 further comprising the steps of:	ANSI in view of Owens, et al. (4,264,808) and Minoli and prior art admissions

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polling the remote locations for captured electronic data, captured signature data and captured biometric data with servers at the central locations; and	Applicants' admission "IPC 230 in FIG. 9 may be configured to handle special entries such as those associated with the use of a credit card (as for example, VISA). In this situation the images or entry records 74 (FIG. 3) could be produced at any POA within the banking system 10 and transmitted to the IPC 230 for processing thereat as already explained." Owens, et al., Col. 20, lns 31-37.
comparing the captured signature data and the captured biometric data to stored signature data and stored biometric data respectively for identification verification.	Applicants' admission "With regard to FIG. 8, the various reports (non-image application reports) shown as 214, various reporting data 216, the associated images 218 from the image file means 100, qualified transaction data 220 from the data file means 114 and the associated signatures 222 from a signature file means located at IPC 14 are used to create image reports 224 at the associated IPC 14." Owens, et al., Col. 19, lns 3-9.
34. A method as in claim 32 wherein said transmitting the transaction data step comprises the steps of:	ANSI in view of Owens, et al. (4,264,808) and Minoli
transmitting data within the remote locations;	Items are transmitted from the "Image and Data Processing Application" to the "Originating FII translator" within the originating financial institution. ANSI, p. 202 (FIG. F.1).
transmitting data from each remote location to a corresponding central location; and	"[P]ackaged interchange content is delivered from the originating imaging application's financial image interchange translator to the receiving imaging application's financial image interchange translator is through a computer network by transmitting the packaged interchange data electronically." ANSI, p. 14; 155. Examples of communication methods include "teleprocessing methods; links, network end point addresses, speed, data transfer protocols, etc." ANSI, p. 172; 199.
transmitting data within the central locations.	Items are transmitted from the "Receiving FII translator" to the "Image and Data Processing Application" within the receiving financial institution. ANSI, p. 203 (FIG. F.2).
35. A method as in claim 34 wherein said transmitting data from each remote location to a corresponding central location step comprises the steps of:	ANSI in view of Owens, et al. (4,264,808) and Minoli
connecting each remote location to a corresponding central location; and	"[P]ackaged interchange content is delivered from the originating imaging application's financial image interchange translator to the receiving imaging application's financial image interchange translator is through a computer network by transmitting the packaged interchange data electronically." ANSI, p. 15-16; 199.

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	Examples of communication methods include "teleprocessing methods: links, network end point addresses, speed, data transfer protocols, etc." ANSI, p. 172; 155. "Communication protocol" is defined as "[a] set of conventions or rules involving predetermined sequences of control signals or characters to establish, or break, connection, or exchange data between discrete computer systems, within networks, (between mainframe and remote terminals), or between a computer and a peripheral." ANSI, p. 142.
connecting each central location to corresponding remote locations.	"[P]ackaged interchange content is delivered from the originating imaging application's financial image interchange translator to the receiving imaging application's financial image interchange translator is through a computer network by transmitting the packaged interchange data electronically." ANSI, p. 14; 155. Examples of communication methods include "teleprocessing methods: links, network end point addresses, speed, data transfer protocols, etc." ANSI, p. 167; 155. "Communication protocol" is defined as "[a] set of conventions or rules involving predetermined sequences of control signals or characters to establish, or break, connection, or exchange data between discrete computer systems, within networks, (between mainframe and remote terminals), or between a computer and a peripheral." ANSI, p. 216.
36. A method as in claim 29 further comprising the steps of:	ANSI in view of Campbell, et al. (5,373,550)
collecting and sending the electronic or paper transaction data at intermediate locations;	"The system of FIG. 1 comprises a public switched telephone network 10. The network 10 contains at least one check image processing node 12 which provides check clearance services. The node 12 receives images of checks from a sending institution 14 transmitted through the network 10. The node 12 processes the check images and sends them to a receiving institution 16." Campbell, et al., Col. 2, lns 25-33.
managing the collecting and sending of the transaction data; and	"The node controller and router 42 provides interfaces to systems external to the node 12. It is connected to all the other subsystems in the node 12 by way of the local area network 56. The controller 42 provides access to the database 46 and directs check images to appropriate subsystems in the node 12 connected to the local area network 56. Campbell, et al., Col. 5, lns. 14-26.]
transmitting the transaction data within the intermediate location and between the intermediate locations and the remote locations and the central locations.	"A local area network 56 connects the subsystems of the node 12 described above." Campbell, et al., Col. 4, lns. 56-58. The node 12 receives images of checks from a sending institution 14 transmitted through the network 10. The node 12 processes the check images and sends them to a receiving institution 16." Campbell, et al., Col. 2, lns 25-33.
37. A method as in claim 36 wherein said managing the collecting and sending step comprises the steps of:	ANSI in view of Campbell, et al. (5,373,550) and Minoli "The system of FIG. 1 comprises a public switched telephone network 10. The network 10 contains at least one check image processing node 12 which provides check clearance services. The node 12 receives images of

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	checks from a sending institution 14 transmitted through the network 10. The node 12 processes the check images and sends them to a receiving institution 16." Campbell, et al., Col. 2, lns 25-33.
polling the remote locations for transaction data with servers in the intermediate locations;	"The node 12 contains a frame relay assembler/disassembler 40 which receives frames of digital information representing check images sent by service subscribers to the network 38. The assembler/disassembler 40 also transmits frames of digital information representing check images to the network 38 after those images have been processed by the node 12. A node controller and router 42 controls the routing of check images to their intended destinations, both in the controller and to their ultimate destinations outside the network 38." Campbell, et al., Col. 3, lns 30-39. "The controller 42 may read some data accompanying check images, for example, it may identify that TCP/IP protocol information accompanying those images. That information may instruct the node 12 about the identity of the sending institution and the intended receiving institution." Campbell, et al., Col. 5, lns 23-28. Several severs are suitable for imaging applications. Minoli, p. 33; 250.
storing the transaction data in the intermediate locations in a useful form, said storing maintains the transaction data in a primary memory of a memory hierarchy and performs backup storage of the transaction data into a secondary memory of the memory hierarchy; and	"[T]he processing node 12 receives check images and performs certain processing procedures on those images, including at least temporary storage of the received check images." Campbell, et al., Col. 3, lns. 43-58.
dynamically assigning the servers to receive portions of the transaction data for balancing the transaction data among the servers.	"The node 12 contains a frame relay assembler/ disassembler 40 which receives frames of digital information representing check images sent by service subscribers to the network 38. The assembler/disassembler 40 also transmits frames of digital information representing check images to the network 38 after those images have been processed by the node 12. A node controller and router 42 controls the routing of check images to their intended destinations, both in the controller and to their ultimate destinations outside the network 38." Campbell, et al., Col. 3, lns 30-39. "Bridges connect two or more LANs at the MAC layer. A bridge receiving packets (frames of information will pass the packets to the interconnected LAN based on some forwarding algorithm selected by the manufacturer (explicit route, dynamic address filtering, static address filtering, etc.) Minoli, p. 248-49.
38. The method as in claim 36 wherein said transmitting the transaction data step comprises the steps of:	ANSI in view of Campbell, et al. (5,373,550)
transmitting data within the remote locations;	Items are transmitted from the "Image and Data Processing Application" to the "Originating FII translator" within the originating financial institution. ANSI, p. 202 (FIG. F.1).

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transmitting data from each remote location to a corresponding intermediate location;	The node 12 receives images of checks from a sending institution 14 transmitted through the network 10. The node 12 processes the check images and sends them to a receiving institution 16." Campbell, et al., Col. 2, lns 25-33.
transmitting data within the intermediate locations;	"A local area network 56 connects the subsystems of the node 12 described above." Campbell, et al., Col. 4, lns. 56-58.
transmitting data from each intermediate location to corresponding central locations; and	The node 12 receives images of checks from a sending institution 14 transmitted through the network 10. The node 12 processes the check images and sends them to a receiving institution 16." Campbell, et al., Col. 2, lns 25-33.
transmitting data within the central locations.	Items are transmitted from the "Receiving FII translator" to the "Image and Data Processing Application" within the receiving financial institution. ANSI, p. 203 (FIG. F.2).
39. A method as in claim 38 wherein said transmitting data from each remote location to corresponding intermediate locations step comprises the steps of:	ANSI in view of Campbell, et al. (5,373,550)
connecting each remote location to a corresponding intermediate location; and	The node 12 receives images of checks from a sending institution 14 transmitted through the network 10. The node 12 processes the check images and sends them to a receiving institution 16." Campbell, et al., Col. 2, lns 25-33. "[P]ackaged interchange content is delivered from the originating imaging application's financial image interchange translator to the receiving imaging application's financial image interchange translator is through a computer network by transmitting the packaged interchange data electronically." ANSI, p. 15-16; 199. Examples of communication methods include "teleprocessing methods: links, network end point addresses, speed, data transfer protocols, etc." ANSI, p. 172; 199. "Communication protocol" is defined as "[a] set of conventions or rules involving predetermined sequences of control signals or characters to establish, or break, connection, or exchange data between discrete computer systems, within networks, (between mainframe and remote terminals), or between a computer and a peripheral." ANSI, p. 142.
connecting the intermediate locations to corresponding remote locations.	The node 12 receives images of checks from a sending institution 14 transmitted through the network 10. The node 12 processes the check images and sends them to a receiving institution 16." Campbell, et al., Col. 2, lns 25-33. "[P]ackaged interchange content is delivered from the originating imaging application's financial image interchange translator to the receiving imaging application's financial image interchange translator is through a computer network by transmitting the packaged interchange data electronically." ANSI, p. 15-16; 199. Examples of communication methods include "teleprocessing methods: links, network end point addresses, speed, data transfer protocols, etc." ANSI, p. 172; 199. "Communication protocol" is defined as "[a] set of

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	conventions or rules involving predetermined sequences of control signals or characters to establish, or break, connection, or exchange data between discrete computer systems, within networks, (between mainframe and remote terminals), or between a computer and a peripheral." ANSI, p. 216.
40. A method as in claim 38 wherein said transmitting data from each intermediate location to corresponding central locations comprises the steps of:	ANSI in view of Campbell, et al. (5,373,550)
connecting each intermediate location to an external communication network; and	The node 12 receives images of checks from a sending institution 14 transmitted through the network 10. The node 12 processes the check images and sends them to a receiving institution 16." Campbell, et al., Col. 2, lns 25-33. "[P]ackaged interchange content is delivered from the originating imaging application's financial image interchange translator to the receiving imaging application's financial image interchange translator is through a computer network by transmitting the packaged interchange data electronically." ANSI, p. 15-16; 199. Examples of communication methods include "teleprocessing methods: links, network end point addresses, speed, data transfer protocols, etc." ANSI, p. 172; 199. "Communication protocol" is defined as "[a] set of conventions or rules involving predetermined sequences of control signals or characters to establish, or break, connection, or exchange data between discrete computer systems, within networks, (between mainframe and remote terminals), or between a computer and a peripheral." ANSI, p. 217.
connecting the corresponding central locations to the communication network.	The node 12 receives images of checks from a sending institution 14 transmitted through the network 10. The node 12 processes the check images and sends them to a receiving institution 16." Campbell, et al., Col. 2, lns 25-33. "[P]ackaged interchange content is delivered from the originating imaging application's financial image interchange translator to the receiving imaging application's financial image interchange translator is through a computer network by transmitting the packaged interchange data electronically." ANSI, p. 15-16; 199. Examples of communication methods include "teleprocessing methods: links, network end point addresses, speed, data transfer protocols, etc." ANSI, p. 172; 199. "Communication protocol" is defined as "[a] set of conventions or rules involving predetermined sequences of control signals or characters to establish, or break, connection, or exchange data between discrete computer systems, within networks, (between mainframe and remote terminals), or between a computer and a peripheral." ANSI, p. 216.
41. A method as in claim 40 wherein said transmitting data from each intermediate location to corresponding central locations step further comprises the steps of:	ANSI in view of Campbell, et al. (5,373,550)
packaging the transaction data into frames;	"The node 12 contains a frame relay assembler/disassembler 40 which receives frames of digital information

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and	representing check images sent by service subscribers to the network 38. The assembler/disassembler 40 also transmits frames of digital information representing check images to the network 38 after those images have been processed by the node 12. A node controller and router 42 controls the routing of check images to their intended destinations, both in the controller and to their ultimate destinations outside the network 38." Campbell, et al., Col. 3, lns 30-39.
transmitting the frames through the external communication network.	"The node 12 contains a frame relay assembler/disassembler 40 which receives frames of digital information representing check images sent by service subscribers to the network 38. The assembler/disassembler 40 also transmits frames of digital information representing check images to the network 38 after those images have been processed by the node 12. A node controller and router 42 controls the routing of check images to their intended destinations, both in the controller and to their ultimate destinations outside the network 38." Campbell, et al., Col. 3, lns 30-39.

Element by element comparison of claims 42-45 of the '988 Patent to Minoli, "Imaging in Corporate Environments."

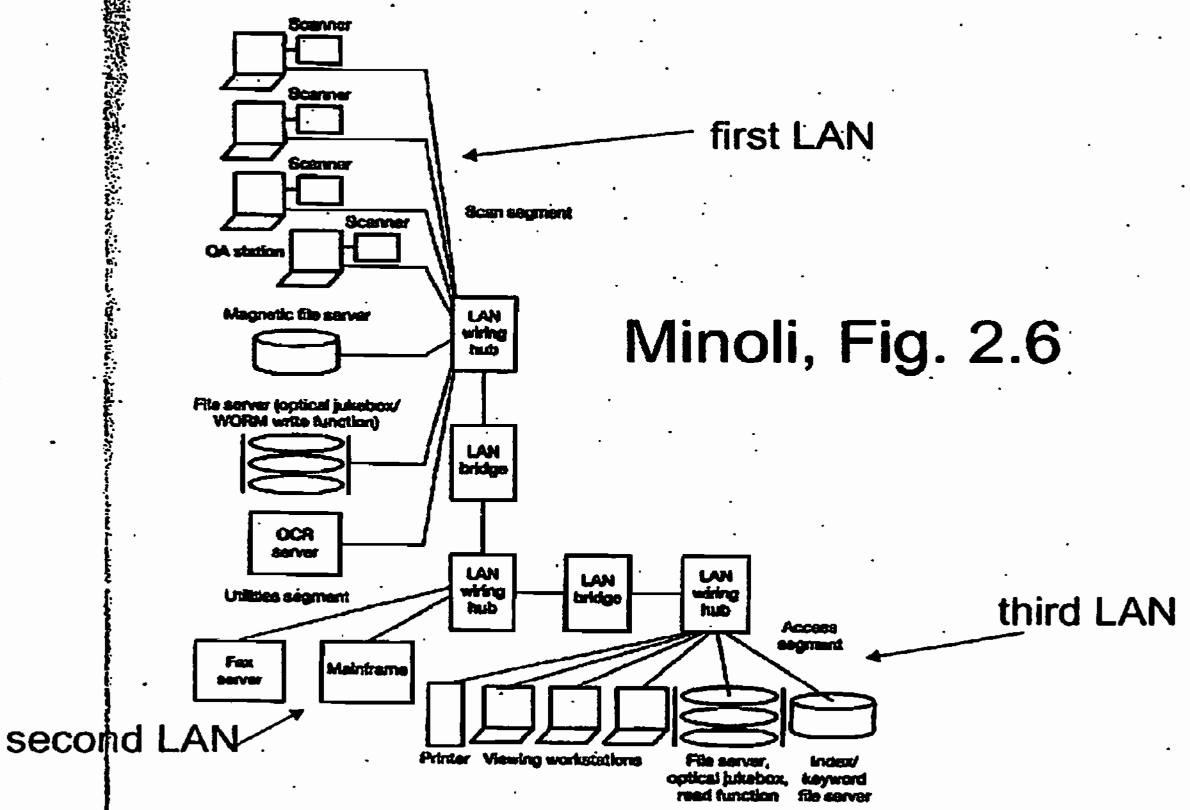
Scanner
Scanner
Scanner
Scanner
QA station
Magnetic file server
File server (optical jukebox/ WORM write function)
OCR server
Utilities segment
Fax server
Mainframe
Scan segment
LAN wiring hub
LAN bridge
LAN wiring hub
LAN bridge
LAN wiring hub
Access segment
Printer
Viewing workstations
File server, optical jukebox, read function
Index/ keyword file server
first LAN
second LAN
third LAN
Minoli, Fig. 2.6

Figure 2.6 A typical LAN-based imaging system at the hardware level. (*Note:* WORMs are created on equipment located on the scan segment. After they are "written," they are physically moved to the access segment servers.)

porate Environments"

'988 Patent	Minoli, "Imaging in Corporate Environments"
42. A communication network for the transmission of data within and between one or more remote data processing subsystems, at least one intermediate data collecting subsystem and at least one central subsystem forming a tiered architecture	Minoli is entitled "Imaging in Corporate Environments: Technology and Communication." As Minoli states in the preface to his book, "The word Communication in the subtitled emphasizes aspects of remote deliver of stored image information, whether across a local area network (LAN) in a building or campus, or a wide area network (WAN) covering a region, a state, or the nation." Minoli, p. xi. "WAN communication services [] can be employed in support of distributed imaging in general and LAN interconnection in particular." Minoli, p. 39. FIGs. 2.5, 2.6, 2.8, 2.10 and 9.8 show multi-tiered imaging architecture.
wherein each of said at least one central data processing subsystem communicate with a corresponding some of said at least one data collecting subsystem and each of said at least one data collecting subsystem communicate with a corresponding some of said one or more data processing subsystems,	Minoli teaches that a typical remote image capture application in the banking industry "involves (1) scanning of documents at branch offices for transmission to a host computer at the main office of the central site." Minoli, p. 20. The Scan segment provides an imaging subsystem (scanner) that captures images of documents. These images may be routed in electronic form through the Utilities segment to make use of the fax server or mainframe, to the Access segment for viewing and storage. As is clear from the diagram attached in Exhibit F, in order for images to be transmitted to the Access Segment, they must be routed through the Utilities segment.. Minoli, p. 31. The top-left-hand corner of FIG. 2.6 demonstrates several scanners connected by a LAN as a "Scan segment" in a 3-tier architecture. Minoli, p. 31. Each of the 3 LANs has a LAN wiring hub, which is a common connection point for devices in a network. The LANs are illustrated as connected by a LAN bridge, which is a device that connects two or more LANs. However, Minoli contemplates that these 3 LANs could also be connected by a WAN, "WAN communication services [] can be employed in support of distributed imaging in general and LAN interconnection in particular." Minoli, p. 39. In FIG. 9.8, a "remote site" having a "LAN wiring hub" which is connected to a central site through a WAN. Minoli, p. 270.
said data processing subsystem including an imaging subsystem for capturing images of documents and receipts, comprising:	"Scanning station" "converts documents into compressed data files and transmits them (typically over a LAN) to a shared-image database." Minoli, p. 9.
42a. at least one first local area network for transmitting data within a corresponding one of said one or more remote subsystems;	Minoli teaches that a typical remote image capture application in the banking industry "involves (1) scanning of documents at branch offices for transmission to a host computer at the main office of the central site." Minoli, p. 20. The top-left-hand corner of FIG. 2.6 is the "Scan segment" and demonstrates several scanners connected by a LAN having a "LAN wiring hub." Minoli, p. 31.
42b. at least one second local area network for transmitting data within a corresponding one of said at least one intermediate subsystem;	The bottom-left-hand corner of FIG. 2.6 demonstrates a "fax server" and a mainframe connected via a "LAN wiring hub" in a portion of the 3-tiered-architecture shown as the "Utilities segment." Minoli, p. 31.
42c. at least one third local area network for transmitting data within a corresponding one of said at least one central subsystem; and	FIG. 2.6 shows an "Access segment" in the bottom corner of the 3-tiered architecture including a file server, a printer, and viewing workstations connected through a "LAN wiring hub." This LAN is connected to the Utilities segment LAN via a "LAN bridge." Minoli, p. 31.

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'988 Patent	Minoli, "Imaging in Corporate Environments"
42d. at least one wide area network for transmitting data between said one or more remote subsystems, said at least one intermediate subsystem and said at least one central subsystem.	"WAN communication services [] can be employed in support of distributed imaging in general and LAN interconnection in particular." Minoli, p. 39. "Figure 9.8 depicts WAN connectivity using public frame relay service for LANs supporting imaging applications." Minoli, p. 270. The caption of that figure teaches that this network architecture can be used "to support enterprisewide dissemination of image," such as "scanning of documents at branch offices for transmission to a host computer at the main office of the central site." A WAN is also illustrated in FIGs. 2.8 and 2.10 allowing remote users access to images. Routers and bridges are illustrated providing communications over a WAN.
43. A communication network as in claim 42 further comprising:	See claim 42
at least one first modem for connecting said at least one first local area network of said one or more remote subsystems to a corresponding one of said at least one second local area network through said at least one wide area network;	Minoli teaches "dial-up link between LAN routers." Minoli, p. 263. "This approach involves the use of modems connected to the LAN server (bridge or router), to utilize the analog public telephone network. Circuit switching implies that the communications channel is not dedicated 24 h per day, but must be brought on line when needed (via a process called call setup) and then taken down when no longer needed." Minoli, p. 263.
at least one bank of modems for connecting said at least one second local area network of said at least one intermediate subsystem to a corresponding some of said at least one first local area network of said one or more remote subsystems through said at least one wide area network;	Minoli teaches "dial-up link between LAN routers." Minoli, p. 263. "This approach involves the use of modems connected to the LAN server (bridge or router), to utilize the analog public telephone network. Circuit switching implies that the communications channel is not dedicated 24 h per day, but must be brought on line when needed (via a process called call setup) and then taken down when no longer needed." Minoli, p. 263.
at least one first wide area network router for connecting a corresponding one of said at least one second local area network of said at least one intermediate subsystem to said at least one wide area network; and	Figure 9.8 shows a "Router" for connecting the "LAN wiring hub" of the "second local area network" to the "wide area network," i.e., "frame relay network." Minoli, p. 270. FIG. 2.8 also shows a transmission to a WAN through a router. Minoli, p. 37.
at least one second wide area network router for connecting a corresponding one of said at least one third local area network of said at least one central subsystem to said at least one wide area network.	Figure 9.8 shows a "Router" for connecting the "LAN wiring hub" of the "third local area network" to the "wide area network," i.e., "frame relay network." Minoli, p. 270. FIG. 2.8 also shows a transmission to a WAN through a router. Minoli, p. 37.

'988 Patent	Minoli, "Imaging in Corporate Environments"
44. A system as in claim 43 wherein said at least one first wide area network and said at least one second wide area network comprises a carrier cloud which utilizes a frame relay method for transmitting the transaction data.	"Frame relay service provides interconnection among n sites by requiring only that each site be connected to the 'network cloud' via an access line. ... The cloud consists of switching nodes interconnected by trunks used to carry traffic aggregated from many users (see Fig. 9.7). In a public frame relay network the switches and the trunks are put in place by a carrier for use by many corporations. ... In a private frame relay network, the switches and trunks are put in place (typically) by the corporate communications department of the company in question." Minoli, p. 268.
45. A system as in claim 44 wherein said at least one second local area network and said at least one third local area network further comprises a corresponding one of at least one network switch for routing transaction data within said at least one second local area network and said at least one third local area network; and further wherein said data comprises (a) electronic transactions from credit cards, smart cards and debit cards, signature data or biometric data, or (b) paper transactions from documents and receipts.	"Frame relay service provides interconnection among n sites by requiring only that each site be connected to the 'network cloud' via an access line. ... The cloud consists of switching nodes interconnected by trunks used to carry traffic aggregated from many users (see Fig. 9.7). In a public frame relay network the switches and the trunks are put in place by a carrier for use by many corporations. ... In a private frame relay network, the switches and trunks are put in place (typically) by the corporate communications department of the company in question." Minoli, p. 268. Minoli teaches that a typical remote image capture application in the banking industry "involves (1) scanning of documents at branch offices for transmission to a host computer at the main office of the central site." Minoli, p. 20. "Scanning station" "converts documents into compressed data files and transmits them (typically over a LAN) to a shared-image database." Minoli, p. 9.

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Element by element comparison of claims 1-41 of the '988 Patent to the ANSI/ABA X9.46-1995 document, alone and in combination with the newly cited and previously cited prior art.

'988 Patent	ANSI/ABA X9.46-1995 document
1. A system for central management, storage and report generation of remotely captured paper transactions from documents and receipts comprising:	The ANSI X9.46 standard is an electronic data interchange protocol for the exchange of electronic digitized images of financial documents among different financial institutions involved in a payment transaction. ANSI, p. 1. The exchange occurs across diverse computing platforms. Packaged interchange content may be delivered from the originating imaging application's financial image interchange translator to the receiving imaging application's financial image interchange translator is through a computer network by transmitting the data electronically. ANSI, p. 15-16. "This standard is intended to improve the payments system by supporting the interchange of digitized images of financial documents, specifically check and similar paper-based instruments; facilitate the truncation of the paper at the earliest possible point in the clearing process; and support transmissions from a single transaction to many transaction serving banking payment processing applications." ANSI, p. 1.
1a. one or more remote data access subsystems for	The ANSI X9.46 standard is an electronic data interchange protocol for the exchange of electronic digitized images of financial documents among different financial institutions involved in a payment transaction. ANSI, p. 1.
capturing and	"The institution participating in check image interchange shall capture both the full front and the full back of the item. ANSI, p. 9. The definition of Image Capture is found in the glossary of the standard on p. 220, "The operation of converting a human-readable image on paper to a digital representation stored in memory, or some other electronic, or optical, or electromagnetic, surfaced storage media. This is normally accomplished using some type of scanning device or camera."
sending.	Transaction sets are interchanged. Transaction set contents are different for each functional group that can be interchanged. ANSI, p. 14.
paper transaction data and Subsystem identification information comprising	The function groups include "item views". ANSI, p. 12. "Item Views" include "bundles of views of imaged items, item information for each view and item view data." ANSI, p. 12. "For each item, e.g., check, this standard defines mechanisms for sending and receiving both information about the item (item information) and digitized representations of the item." ANSI, p. 9. Subsystem ID: In addition to images, a data element known as "creation computer" which "conveys the system name of the originator's host computer that was used to create and digitize the imaging data" may be transmitted. ANSI, p. 105. The "creation computer" is a item view data element. ANSI, p. 93-94.
at least one imaging subsystem for capturing the documents and receipts and	The institution participating in check image interchange shall capture both the full front and the full back of the item. This is accomplished using some type of scanning device or camera. ANSI, p. 9; 217.

'988 Patent	ANSI/ABA X9.46-1995 document
at least one data access controller for	"The data to be interchanged from the originating imaging application are packaged by the FII-translator." ANSI, p. 12.
managing the capturing and sending of the transaction data;	"The translator (FII-translator) function of the originating application produces an interchange object (i.e., a complex data structure) by translating the output of the local imaging handling, data processing, or data storage application into a standardized interchangeable 'edi' structure." ANSI, p. 14; 150-151.
1b. at least one central data processing subsystem for	"The data to be interchanged from the originating imaging application are packaged by the FII-translator, and sent to the receiving imaging application." ANSI, p. 12.
processing, sending, verifying and storing	"[U]pon receipt of the interchanged data, the FII-translator will parse the incoming data for the receiving imaging application. Then, the receiving imaging application may generate acknowledgements or replies to query requests, and become the originating imaging application for a new image interchange." ANSI, p. 12. On p. 14, lines 465-466, of the standard states that the "edi" translator function of the receiving application translates the "edi" interchange into the locally understood data structures for subsequent storage or processing of the data by the receiver's application."
the paper transaction data and the subsystem identification information comprising	Transaction sets are interchanged. Transaction set contents are different for each functional group that can be interchanged. ANSI, p. 14. The function groups include "item views". ANSI, p. 14. "Item Views" include "bundles of views of imaged items, item information for each view and item view data." ANSI, p. 14. "For each item, e.g., check, this standard defines mechanisms for sending and receiving both information about the item (item information) and digitized representations of the item." ANSI, p. 9. Subsystem ID: In addition to images, a data element known as "creation computer" which "conveys the system name of the originator's host computer that was used to create and digitize the imaging data" may be transmitted. ANSI, p. 105. The "creation computer" is a item view data element. ANSI, p. 93-94.
a management subsystem for managing the processing, sending and storing of the of the transaction data; and	"[U]pon receipt of the interchanged data, the FII-translator will parse the incoming data for the receiving imaging application. Then, the receiving imaging application may generate acknowledgements or replies to query requests, and become the originating imaging application for a new image interchange." ANSI, p. 12.
1c. at least one communication network for the transmission of the transaction data	"[P]ackaged interchange content is delivered from the originating imaging application's financial image interchange translator to the receiving imaging application's financial image interchange translator is through a computer network by transmitting the packaged interchange data electronically." ANSI, p. 16; 199.
within and	Items are transmitted from the "Image and Data Processing Application" to the "Originating FII translator"

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Element by element comparison of claims 42-45 of the '988 Patent to Campbell, et al. (U.S. Patent No. 5,373,550).

'988 Patent	'550 to Campbell, et al.
42. A communication network for the transmission of data within and between one or more remote data processing subsystems, at least one intermediate data collecting subsystem and at least one central subsystem forming a tiered architecture wherein each of said at least one central data processing subsystem communicate with a corresponding some of said at least one data collecting subsystem and each of said at least one data collecting subsystem communicate with a corresponding some of said one or more data processing subsystems,	"The system of FIG. 1 comprises a public switched telephone network 10. The network 10 contains at least one check image processing node 12 which provides check clearance services. The node 12 receives images of checks from a sending institution 14 transmitted through the network 10. The node 12 processes the check images and sends them to a receiving institution 16." Campbell, et al., Col. 2, ln 25-33.
said data processing subsystem including an imaging subsystem for capturing images of documents and receipts, comprising:	"The sending institution 14 possesses check imaging equipment 18 which produces electrical or optical signals representing the image of a check. The image may comprise a sequence of signals each representing some characteristic of a picture element, for example, each signal may represent the intensity or color of light reflected from a small region on the front or back surface of a check. The check imaging equipment may be any device which can create suitable graphic image signals. For example, the imaging equipment may comprise systems which scan the front face, the back face or both the front and back faces of a check, as required, to create a series of intensity or color signals for each picture element making up the scanned surfaces of the check. The imaging equipment may be large multiworkstation systems available from companies such as IBM, UNISYS, or NCR. Campbell, et al., Col. 2, ln. 64 – Col. 3, ln. 12.
42a. at least one first local area network for transmitting data within a corresponding one of said one or more remote subsystems;	"The imaging equipment may be large multiworkstation systems available from companies such as IBM, UNISYS, or NCR." Campbell, et al., Col. 3, ln. 10-12. "The images produced by the equipment 18 are directed to a network interface 20 which converts the signals from the equipment 18 into signals suitable for transmission on the telephone network 10." Campbell, et al., Col. 3, ln 17-20. "The output of the network interface 20 is connected to one or more network access lines 22 in FIG. 1. The network access lines 22 may comprise any form of transmission line suitable for carrying the expected volume of check image traffic between the sending institution 14 and the telephone network 10. For example, the network access lines 22 may comprise one or more digital transmission lines operating at speeds of about 2400 bits per second to about 1.544 megabits per second or more. Connection to the network 10 may be by an ordinary dial up line or by a dedicated private line." Campbell, et al., Col. 3, ln 20-31.

'988 Patent	'550 to Campbell, et al.
42b. at least one second local area network for transmitting data within a corresponding one of said at least one intermediate subsystem;	"A local area network 56 connects the subsystems of the node 12 described above." Campbell, et al., Col. 4, lns. 56-58. "The node controller and router 42 provides interfaces to systems external to the node 12. It is connected to all the other subsystems in the node 12 by way of the local area network 56. The controller 42 provides access to the database 46 and directs check images to appropriate subsystems in the node 12 connected to the local area network 56. The controller 42 also routes the check images from the node 12 to their ultimate destinations by way of the assembler/disassembler 40 and the frame relay network 38. The controller 42 may read some data accompanying check images, for example, it may identify that TCP/IP protocol information accompanying those images." Campbell, et al., Col. 5, lns. 14-26.
42c. at least one third local area network for transmitting data within a corresponding one of said at least one central subsystem; and	"Check images are received in a network interface 30 in the receiving institution 16. The interface 30 transforms the signals from the network 10 into a form suitable for use by check image processing equipment 32 located in the receiving institution 16. The check image processing equipment 32 may be similar to the imaging equipment 18 located in the sending institution 14. The equipment 32 may also be facsimile equipment, character recognition equipment, e-mail systems, or any other image processing equipment by which the images received may be displayed or used by the receiving institution." Campbell, et al., Col. 3, ln 41-52.
42d. at least one wide area network for transmitting data between said one or more remote subsystems, said at least one intermediate subsystem and said at least one central subsystem.	The image of a check is created in a sending institution and sent to a receiving institution by means of the public switched telephone network. Campbell, et al., Col. 2, lns. 20-22. "The public switched telephone network 10 may be a telephone network provided by a local exchange carrier such as one of the Regional Bell Operating Companies or it may be a telephone network provided by a long distance carrier such as AT&T. Another example of a public switched telephone network 10 is the combined network provided by a local exchange carrier and a long distance carrier. The network may be either electrically or optically based or may involve combinations of those two technologies. The network may be digital or analog. Two examples of suitable digital networks are a packet network and a frame relay network, such as the existing packet and frame relay networks now provided by carriers such as AT&T." Campbell, et al., Col. 2, lns. 50-63.
43. A communication network as in claim 42 further comprising:	Campbell et al. in view of Minoli "Connection to the network 10 may be by an ordinary dial up line or by a dedicated private line." Campbell, et al., Col. 3, lns 29-31.
at least one first modem for connecting said at least one first local area network of said one or more remote subsystems to a corresponding	Dial-up link between LAN routers. This approach involves the use of modems connected to the LAN server (bridge or router), to utilize the analog public telephone network. Circuit switching implies that the communications channel is not

'988 Patent	'550 to Campbell, et al.
one of said at least one second local area network through said at least one wide area network;	dedicated 24 h per day, but must be brought on line when needed (via a process called call setup) and then taken down when no longer needed. Minoli, p. 263.
at least one bank of modems for connecting said at least one second local area network of said at least one intermediate subsystem to a corresponding some of said at least one first local area network of said one or more remote subsystems through said at least one wide area network;	Dial-up link between LAN routers. This approach involves the use of modems connected to the LAN server (bridge or router), to utilize the analog public telephone network. Circuit switching implies that the communications channel is not dedicated 24 h per day, but must be brought on line when needed (via a process called call setup) and then taken down when no longer needed. Minoli, p. 263.
at least one first wide area network router for connecting a corresponding one of said at least one second local area network of said at least one intermediate subsystem to said at least one wide area network; and	Minoli Fig. 9.7 (pg. 269) First router connecting two or more LANs over a WAN. The public switched telephone network 10 may be a frame relay network, a WAN. Campbell, et al., Col. 2, ln 61.
at least one second wide area network router for connecting a corresponding one of said at least one third local area network of said at least one central subsystem to said at least one wide area network.	Minoli Fig. 9.7 (pg. 269) Second router connecting two or more LANs over a WAN. The public switched telephone network 10 may be a frame relay network, a WAN. Campbell, et al., Col. 2, ln 61.
44. A system as in claim 43 wherein said at least one first wide area network and said at least one second wide area network comprises a carrier cloud which utilizes a frame relay method for transmitting the transaction data.	Campbell et al. in view of Minoli "Frame relay service provides interconnection among n sites by requiring only that each site be connected to the "network cloud" via an access line. ... The cloud consists of switching nodes interconnected by trunks used to carry traffic aggregated from many users (see Fig. 9.7). In a public frame relay network the switches and the trunks are put in place by a carrier for use by many corporations. Carrier networks based on frame relay provide communications at up to 1.544 Mbps (in the United States), shared bandwidth on demand, and multiple user sessions over a single access line. The throughput is much higher than that available for packet switching, making the service attractive for imaging applications. In a private frame relay network, the switches and trunks are put in place (typically) by the corporate communications department of the company in question." Minoli, p. 268 The public switched telephone network 10 may be a frame relay network, a WAN. Campbell, et al., Col. 2, ln 61.

'988 Patent	'550 to Campbell, et al.
45. A system as in claim 44 wherein said at least one second local area network and said at least one third local area network further comprises a corresponding one of at least one network switch for routing transaction data within said at least one second local area network and said at least one third local area network;	"Frame relay service provides interconnection among n sites by requiring only that each site be connected to the "network cloud" via an access line. ... The cloud consists of switching nodes interconnected by trunks used to carry traffic aggregated from many users (see Fig. 9.7). In a public frame relay network the switches and the trunks are put in place by a carrier for use by many corporations. Carrier networks based on frame relay provide communications at up to 1.544 Mbps (in the United States), shared bandwidth on demand, and multiple user sessions over a single access line. The throughput is much higher than that available for packet switching, making the service attractive for imaging applications. In a private frame relay network, the switches and trunks are put in place (typically) by the corporate communications department of the company in question." Minoli, p. 268.
and further wherein said data comprises (a) electronic transactions from credit cards, smart cards and debit cards, signature data or biometric data, or (b) paper transactions from documents and receipts.	The node 12 receives images of checks from a sending institution 14 transmitted through the network 10. The node 12 processes the check images and sends them to a receiving institution 16." Campbell, et al., Col. 2, ln 25-33.

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